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THE HORTICULTURIST



A JOURNAL OF RURAL LIFE, LITERATURE, ART AND TASTE.



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THE HORTICULTURIST

AND

JOURNAL OF RURAL ART AND TASTE.

EDITED BY

HENRY T. WILLIAMS,

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VILLA OF A GERMAN PRINCE.

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VOL. 30. JANUARY, 1875. NO. 343.

Special Contributions.

[For THE HORTICULTURIST.]

New Pears.

By Marshall P. Wilder, President of the American Pomological Society.

I HEREWITH forward you descriptions of some of the new pears which have been added to my collection within the last few years, and which I deem worthy of cultivation.

Harris—Size above medium; form ovate pyriform, resembling in general appearance the Beurre Hardy; stem one inch or more in length, frequently inserted angularly and without much depression; color golden russet at maturity; flesh yellowish white, fine grained, very tender, melting and juicy; flavor rich, vinous, spirited and aromatic, somewhat like the Beurre d'Aremberg; season October 1st to 15th; keeps sound at the core; quality *very good* to *best;* will probably prove a first-class fruit; tree healthy, hardy and productive; foliage small. Raised by Messrs. F. & L. Clapp, of Dorchester, from seed, and has been proved several years.

Vicar Junior—A seedling of my own, from the Vicar of Winkfield; size large; form long ovate pyriform; color dull yellow, with some traces of russet, and a brownish red cheek; flesh melting, very juicy and tender; flavor pleasantly acidulous and pretty rich; *very good;* season October to November, and in general appearance resembling Louise Bonne of Jersey.

Madame Henri Desportes—Size above medium, broadly turbinate; eye partly closed, in a deep narrow basin; stem short and thick, set on one side of a lip; skin rather thick, almost entirely covered with cinnamon russet on a yellow ground; flesh white, very fine grained, free from grit, juicy and buttery, very sweet and rich, with a very slight astringency; season last of October and first of November; keeps well; quality *very good* to *best;* resembles Beurre Bosc in color, texture and quality; tree a fine grower and productive. This variety is from seed by Andre Leroy, of Angers, France.

Docteur Koch—Size above medium; obtuse

pyriform; color pale yellow, sometimes with a blush on the sunny side and a few russet blotches; flesh yellowish white, juicy, acidulous, very sprightly, with a rich aroma and a slight astringency; season November; quality *very good;* fruit handsome, and keeps well; tree an upright, vigorous grower. A promising variety.

General de Bonchamp—Size large; form oblong pyriform; color dull yellow, slightly traced with russet; flesh melting, juicy, buttery and fine grained; flavor sweet, rich and aromatic; season November to December, ripening earlier than with Mr. Leroy in France; quality *very good* to *best.* A pear of good promise.

Dr. Lindley—Size medium or above; form inclining to turbinate; stem frequently quite thick and stout, generally inserted without depression on one side; calyx large, irregular, closed, in a shallow basin; color yellow, tinged with red, and somewhat traced with russet; flesh white, buttery, sweet and high flavored; season November; a good keeper; quality *very good;* tree vigorous and productive. A handsome fruit.

Maurice Desportes—Size large; form long acute pyriform, resembling in shape the Beurre Bosc; stem long and set without depression; color rich russet on a dull yellowish green, and occasionally with a brownish red cheek; flesh white, fine, melting, juicy; flavor sweet, rich and savory; season October, producing crops annually; quality *very good;* promises to be a fine acquisition. One of Mr. Leroy's seedlings.

Lucie Audusson—Size large; form broadly turbinate; calyx pretty large, closed; stem short, thick and fleshy; skin dull yellow, nearly covered with russet; flesh white, juicy, buttery, fine grained; flavor very sweet, with pleasant aromatic flavor, resembling Beurre Bosc, but richer; season middle of October to November; quality very excellent, nearly best.

Madame Loriol de Barny—Size large; form ovate pyriform; color dull greenish yellow, mostly covered with russet; flesh melting and juicy; flavor sweet and agreeably perfumed; season November, keeping to December, and very good late autumn variety. Raised from seed by Leroy from the Bartlett.

Faith in Fruit Culture.—A good lesson of faith in fruit culture is furnished from the following incident. Had the cultivators once slacked their zeal or attention, their investments would have been imperilled and lost. The man who hangs on wins at last. The Department of Agriculture has received the following figures of the success in fruit culture of Messrs. L. and A. B. Rathbone, of Oakfield, N. Y.

In the spring of 1864, they set out 4,000 dwarf pear trees: 3,000 Duchess, 500 Louise Bonne de Jersey, 400 Beurre d'Anjou, and 100 Vicar of Winkfield. The trees were put 10 feet apart each way, occupying 10 acres. The soil is a gravelly loam, mixed with sand, with clay subsoil. For five years the trees were severely pruned. The orchard received medium cultivation, but no fertilizer, except that in June, 1873, it was dressed with about 80 bushels per acre of slaked lime, and unleached wood ashes. The fruit was delivered in barrels at Batavia; and the amounts received in several successive years are as follows: $100, $230, $110, $1,338, $2,250, $5,530; total $9,558. In 1873, the gross sales reached $553 per acre.

Salt for Ants.—Mr. Lucius Southwick, of East Rochester, for many years a resident of Livingston county, had an apple tree about four inches in diameter that appeared to be dying last year from the effects of a large ant hill near it. After trying lime and other expedients to destroy them, ineffectually, and becoming satisfied that the tree would die if not relieved, he applied about four quarts of salt to the ant hill. The salt produced a terrible squirming among the ants, causing them to leave incontinently. The tree is recovering its normal vigor and bearing a fine crop of apples this year. Mr. Southwick can only succeed in growing young apple trees on the site of an old orchard by digging large holes and filling them with fresh soil.

The Greenhouse.

Greenhouse for January.

THE commencement of another year will remind us of various preparations to be made for the succeeding months, and as we expect to have severe frost and snow at this season, frequently preventing moving about out of doors, this will give time for any little jobs requiring to be done indoors. If any insects have established themselves, destroy them at once; there is usually but little time for that sort of work during the busy season. Any plants requiring fresh naming should be attended to; wood labels usually last but a short time, but they are cheap and easily replaced. Have a good supply of small labels painted for the use of small plants from cuttings and seeds, which will soon be required. Do not allow strong fires to be burning during the day; this often does much mischief. We usually have bright sun and cold, cutting winds at this season, which prevent much ventilation, so that if the flues or pipes are hot in the day, it runs the temperature up to a great height, making the plants draw, and the flowers will not last either on the plants or when cut; a slight dampening on the floor and near the heating apparatus, will counteract some of the parching effects of strong night fires which are usually necessary to keep out frost, but the flues or pipes ought not to be wetted over; especially when very hot, a quantity of hot steam is raised which would probably scorch some of the plants. Ventilation will require care at this season of cold, drying winds. It is a mistake to have side ventilation opening directly on the plants; this does harm at any time, but especially during cold winter winds. We often see comparatively hardy plants very much injured from that cause. This is also a leading cause of mildew on European grapes grown in houses in this country; the experienced gardener is well aware of this, and is willing to sacrifice in the color of his grapes to the risk of losing the entire crop by mildew. This seems at least a plausible reason why we seldom see the black varieties of grapes advanced beyond a foxy red, at the same time nothing in grape culture is more handsome in color than a well-ripened bunch of Concord, grown in the open ground, and although a nice ripe Catawba, grown on sandy ground, is capital eating, it is not nearly so inviting to the eye, for beauty and general finish will always tell many points in favor of both persons and things.

Abutilon Boule de Niege.—This is certainly the best variety introduced; it flowers well out of doors all the summer, and inside all the winter. Many of the Abutilons require age, and to be grown to a large size before flowering, but this variety will flower when not more than one inch high, growing in a two-inch pot. We obtained it from Europe on the strong recommendations of the English gardening periodicals, and as is usual in importing plants, they are kept such an unreasonable time in the custom-house that the plants were nearly dead, so it was a few months before it flowered. During this time a portion of the horticultural press, in this country, informed their readers that this was only an old friend under a new name; that a white abutilon had been grown in this country for a number of years, etc. This was true enough in part only. The writer referred to the old variety called Mevium, a tall, coarse grower, not very free flowering, and although a white, the flower is much veined with green. We are not surprised at an alarm being given about a new plant from Europe, for we often hear of a new name being given there and sold back here at a high price, The last instance which came under our observation was a gentleman traveling in England buying a new Coleus at quite a high price, and discovering on his return home that the plant he had been so careful in bringing home with him could be purchased here at twenty-five cents each, it being only an American variety sent to England, and named after some noted individual. The Boule de Niege flowers are very beautiful. For baskets of cut flowers, mixed with flowers of Lapageria rosea, they are charming.

Camellias will now be in full bloom, and will require care to prevent water lodging

on the flowers; allow no cold draughts or very dry parched heat. Either of these will brown the edges of the petals, and the flowers will last but a short time. Give good soakings of water when required, which will be but seldom if the plants are planted out. With large well-established plants there is no objection to cutting shoots with long stems if required, but with small plants it is a great injury.

Azaleas.—The early flowering plants which are now going out of bloom should have a warm part of the house, to be syringed and kept moist to induce a free growth for next season's flowering. There are now so many excellent varieties of this very showy plant that it is waste of space to continue growing many of the very old varieties, although many are still worth a place, but the sorts introduced within the last few years are much improved in shape and substance of flowers, also in habit of growth. Many of the so-called double varieties among the old German varieties, although well enough for decoration, would not stand the test of close inspection; but the recent introductions are double and much improved in shape and color. The advantages of the double varieties are that the flowers last in perfection much longer on the plant, and also when cut; although as a florists flower the single kinds are the most beautiful. In a future article we will give a selection of the most desirable kinds, both old and new.

Roses will be flowering freely in a nice heat; will require occasional fumigating for green fly, and dusting with sulphur when signs of mildew are seen. A cold draught will bring on mildew at once, and sudden changes of temperature will also bring mildew. Give some manure water occasionally to plants in active growth.

Pelargoniums must be at once shifted into the flowering pots if not already done, or the growth will be prolonged into the hot weather, and the flowers will not last long. A good loam, mixed with a third of good horse manure, will grow these plants well, and eight-inch pots are large enough for the largest specimens. Cuttings put in now will make nice little flowering bushes in May, if grown on with a little extra heat, but the less fire heat given to the large plants the better. It is difficult to prevent these plants from getting drawn at this season, from the strong fires required only to keep out frost. The fancy varieties will do in a stronger heat without suffering.

Chinese Primula and ***Cinerarias*** will now be in full bloom. Keep the latter well supplied with water and as cool as possible; by watering the sand between the pots a moist atmosphere will be maintained, which is necessary for these plants. We often see them in small pots standing on wooden stages or shelves, and covered with green fly and thrip through being dried to death.

Poinsettias must be kept rather dry and not too hot to induce the floral bracts to remain in beauty the longest possible time; there being now but little root action, little water is required. After the beauty of the plants are over, they can be removed to a dry, warm corner, and no water will be required. Do not cut the stems down at present, or the plants will break prematurely. The new variety called Pulcherrima major is a decided acquisition; it is in full beauty at least two weeks before the old variety, quite distinct in color of bracts, and the bracts are also more numerous, being a slight approach to the so-called double variety; it should be grown by all lovers of the Poinsettia.

Tuberose.—The Pearl variety is much superior to the common double sort; the flower stem is much shorter, and the plant is altogether of a more vigorous growth, both out of doors and also when grown in heat during the winter. The variegated-leaved variety we consider of no value—the plants being grown exclusively for cut flowers, the leaves are made no use of, and if they were, it is no improvement to have a white flowering plant with white striped leaves, and white-leaved plants are said to be of a more delicate constitution than those with green leaves.

Bulbs.—Keep up a succession of plants in the warm house; also of Lily of the Valley. Early bulbs and lily are said to start very poorly this winter. This may be caused by not being

sufficiently matured when obtained, or placing the plants in too strong heat at first, for very early forcing plants from the open air should have gentle heat and abundance of air for the first few days, when, if well matured or more heat being applied, they will usually start free enough. We have known Astilbe Japonica, and also Rhubarb, placed very early in a strong heat refuse to grow, although kept in all the winter. Probably if put in a few weeks later there would have been no difficulty, as other plants from same lot put in later started all right. A few plants of Deutzia gracilis and Astilbe Japonica should be put in heat every ten days. Now is a good time to start a few strong plants—Dicentra spectabilis; these plants are very handsome in the greenhouse, and the color is much finer than late in the season when the sun is powerful; it forces well, although perfectly hardy.

Orchids.—These plants will require a general overhauling at this season before the new roots make much progress. We do not recommend a general repotting of every plant at this season. If this was done, many would not flower, and others would not grow; but it is well to examine all the plants, some may be too wet, others too dry, and the drainage of others out of condition. Cattleya Mossiæ and its varieties should have larger pots if required, and if not, remove as much of the old soil as possible and replace with new; have the plants cleaned and the pots washed; fasten any shoots requiring support with short stakes. Any Cypripedium barbatum if in bad condition should be shaken clean out and potted in fresh soil, but if in good condition, these plants are best potted after flowering when commencing to grow. Ærides and Vandas, surface with fresh, live moss after cleaning plants and pots. If grown on blocks or baskets which are decayed, this is a good time to place in new ones. We use blocks of burnt clay, which answer the purpose better than wood, the roots cling to the clay well and there is no decay of the block, which with wood often takes place about the time that the roots have become well attached to the block. Lælia anceps and Superbiens will be in flower, and must not be disturbed until the flowering is over. The early flowering plants of Dendrobium nobile will also be in flower. None of these must be disturbed until they begin to grow after blooming. Cattelya Trianæ will also be in bloom; these if requiring fresh pots must be done later in the season. Cypripedium insigne will still be in flower if kept cool; these are best potted about March if required, but large plants if carefully watered will grow and flower well for a number of years in same pots. These plants require a stiffer soil than many other varieties; we use half peat and half loam, and obtain abundance of very large flowers. The general collection of Orchids require only good fibry peat with the addition of some living sphagnum moss if at hand, if not, the moss may be dispensed with; in addition the pots or pans must be three parts filled with drainage, consisting of broken pots or charcoal, to give the air and water a free passage, for it must be remembered that most varieties of these splendid plants grow on the branches of trees, generally among mosses, and perhaps a few decayed leaves and their own dead roots.

Bedding plants.—Examine the stock to see which is likely to be short, and give those a warm place to obtain early cuttings. Plants of which the stock is limited and desirable to increase in quantity should have cuttings put in at once; but the propagation of the general stock is best deferred until later in the season. If Lobelias must be increased from seed, it should be sown at once to obtain good strong plants, but it is much best to save a few plants and increase from cuttings. Seedlings at the best are very uncertain, and vary much both in growth and color. The new double variety came out with great flourish of trumpets, but in this country, at least, has to be proved. We would advise planting but a limited number for trial, for the English reports at the end of the season were very contradictory as to its qualities, the good being much in the minority. Look out for seed of Cælosia Huttonii; we notice our good opinion of this plant for bedding is confirmed by others in this country. The new golden Chickweed is much praised by some, but we would recom-

mend a limited trial of the plant first; it will be probably useful in some places.

Bedding Geraniums.—We now redeem our promise of a few notes on some of the most satisfactory varieties of geraniums for this purpose; all these named have been thoroughly tested, and proved good growers and free bloomers the entire season:

Bride—white rose eye.
Lucius—orange scarlet, one of the best.
August Napoleon Baumann—white margin, apricot salmon, red centre.
Comte de Courmont—fire vermilion, extra fine.
Cyclops—blood red.
Destinée—orange scarlet, very dwarf, good for edging.
Dr. Ricci—fine crimson scarlet.
General Grant—good old scarlet.
Lanata—soft rosy scarlet.
Mlle. Nilsson—fine rosy pink.
Mons. Domage—deep velvety scarlet, very fine.
Othello—deep scarlet, shaded purple, fine.

Six excellent double varieties, fine truss, good, but not extra rampant growers, and very free bloomers all the season:

Emile Lemoine—deep pink.
Le Comte Talon—dark rose, tinted salmon, extra.
Vesuve—brilliant crimson scarlet.
Victor Lemoine—very bright scarlet.
Ville de Nancy—large rosy carmine.
Volcan—orange vermilion shaded red.

We have seen none superior to these named, and they are all perfectly distinct. Among others we tested the Negro, which, although novel in color, was worthless as a bedding variety.

Alternanthera.—Of the various forms of the Alternanthera, now in cultivation, *The Gardener's Chronicle* thinks the palm must be given to *A. amabilis latifolia*, or *amabilis bicolor*, as a bold-growing, showy variety. Free in growth, and handsome in color, standing alike in rain and sunshine, it is also sufficiently hardy in character to stand exposure in positions where others would fail. For massing or working out bold ribbon lines, or central designs, it cannot be excelled.

A. Paronychoides is an appropriate companion, coloring well, having a dense, tufty growth, and maintaining its character till quite late in the summer. It does well for edging small beds, and more elaborate and tasteful designs on a small scale. Given rich, moist bottom, and blazing sun overhead, and the Alternantheras just named will grow like weeds, color like roses, and surpass any other plant giving the same hues of leaf coloration.

Stigmaphyllum ciliatum.—This beautiful free flowering climber is very seldom met with, but according to a correspondent of *The Gardener's Chronicle* it is strongly to be recommended for covering a pillar or filling a panel in a warm conservatory or intermediate house. It is most effective if allowed to twine amongst Lapageria rosea, as the blooms of both are open at the same time, and show in pleasing contrast, resembling somewhat in form and color those of Oncidium flexuosum. If grown in a stove or intermediate house, it retains its leaves all the year; but when treated as a conservatory plant it is deciduous. It succeeds admirably in an admixture of peat and loam, in about equal proportions, but the border should be well drained. After blooming, the plant should be kept moderately dry till March, when it may be gradually started into growth by giving it a good watering with tepid water, having previously pruned out the old flowering wood, as the blooms are borne on the young wood, in umbels of from three to five.

Effect of Coal Gas on Plants.—A small landholder in Europe, says the *Moniteur Horticole Belge*, not having a conservatory at his disposal, wintered his plants in a cellar, as is often done. Here, with a little attention, he succeeded in keeping them in tolerably good condition, when an escape of gas occurred from a defective pipe, which was unnoticed for some time. Its effect on the plants was most disastrous, causing the leaves to fall, even before they had time to turn yellow. The foliage of Pittosporum in particular suffered, being completely destroyed in about 24 hours from the first escape of the gas.

The Pleasure Ground.

Evergreens.

An Address, by S. B. Parsons, before the Rural Club of New York, November 12, 1874.

[*Concluded.*]

The *Cunninghamia* is a most desirable low-growing tree, because its Balm-like foliage is so unique. It is, however, very impatient of the combined sun and cold of early March, and frequently loses the ends of its branches. It should, in this latitude, be planted only in the most favored situations.

The *American Arbor Vitæ* is well known, and is extensively used for hedges.

The *Siberian Arbor Vitæ* is, however, much superior to it because it is more hardy, more compact, and does not require trimming. It grows less rapidly, but compensates for its slowness by its superiority when grown. While its superiority for hedges is recognized, it is not so well known that it makes a fine single specimen upon a lawn.

The *Compact Arbor Vitæ* is a round-headed dwarf variety which is much admired.

The *Hovey Arbor Vitæ* is a golden-tinted variety, perfectly hardy, and superior in many respects to the *Golden Arbor Vitæ*, which has long been admired for the beauty of its color, and its adaptation to decorative purposes.

The *Chinese Arbor Vitæ* is very attractive, but too tender for this latitude.

Of all this family, however, the gem is the *Biota elegantissma*. Growing in upright flakes, delicate in its leaves, and sun-tinted in its shading, there is an air of refinement about it which eminently adapts it for the vase and the window or table.

The *Weeping Arbor Vitæ* is striking in its habit, and its leaves are thread-like and drooping.

Retinosporas.—Closely allied to this family are the new *Retinosporas* recently introduced from Japan. They number some twenty varieties, and I am indebted to Mr. Thomas Hogg for some very fine ones, not yet known in Europe. It would be impossible to describe in words what can only be known by the eye—the distinctive beauties of them all.

Among the best, however, are the obtusa, with its finely cut and fern-like leaves, so hardy that the cold of two years ago had no effect upon it, while American Arbor Vitæ at its side were killed.

The *filiformis* is very beautiful with its dark-green foliage and graceful, drooping branches.

The *Golden*, however, is destined to be the most popular. It keeps its bright golden tint throughout the year, gives a lawn a very bright appearance, is admirably adapted to small house fronts and cemetery lots, and is equally valuable for potting purposes and window decoration. For edging, it is superior to Box; and for low hedges, not desired to be impervious, it would be very beautiful. This whole family is among the most valuable acquisitions from Japan.

Junipers.—The *Junipers* are too well known to need description.

The *Swedish* is remarkable for the fresh greenness of its color, and the *Irish* for its steely blue, and its column-like uprightness.

The *Weeping Juniper* is soft and graceful, and the glauca has a most refreshing light lavender tint. This last is a variety of the Red Cedar, and will doubtless make a large tree, while it can be clipped into any size and shape.

The Prostrate Juniper generally clings to the ground; but, by training up a leader, it makes a very picturesque appearance. My specimen thus managed is eight feet high.

Among the Conifers there are very many varieties which I cannot now take your time to describe, but will glance hastily at a few of the broad-leaved evergreens.

Broad-leaved Evergreens.—The *American Holly* is scarcely appreciated as one of the finest of these broad leaved. Being indigenous here, it is perfectly hardy, and its broad, glossy thorn-armed leaves make it very attractive. It forms a very ornamental, impervious hedge, and no cattle would break through it. It is very difficult to successfully transfer even small plants of it from the open

woods; and the seed is so extremely hard to vegetate that it must always be scarce.

The *Andromeda Catesbœii* is hardy, with attractive glossy leaves.

The *A. floribunda* has a nice foliage, surmounted by spikes of white flowers, the buds of which form in the autumn and bloom early in the spring. It is a difficult plant to grow, and, from some cause which I cannot fathom, often deteriorates in the most favored positions. The *Aucuba* in its different varieties, and the *Japan Euonymus*, both *green* and *golden*, with the small-leaved *Cotoneasters*, are dwarf shrubs much admired, and suitable for sheltered situations.

The *English Mahania* is low growing, with glossy-pointed holly-like leaves, and producing spikes of yellowish flowers. The *Japan Mahonia* is taller growing, has larger leaves, and is more imposing in its character.

The *Kalmia*—our native *Laurel*—is often admired when seen in masses in our forests; but few know its beauty when grouped upon the lawn. Its foliage alone would suffice to charm, and nothing can surpass the beauty of its clusters in early June, when each flower is a picture whether in bud or in bloom, for the delicate rose tint of its opening or the pale blush of its maturity.

Professor Agassiz used a very moderate adjective when he described it as the *neatest* plant he knew.

Hedges.—The *Crataegus pyracantha alba*, or Evergreen Thorn, is well adapted for single planting, because it can be trimmed into any shape, and can thus be made very ornamental.

Its great value, however, is in an impervious hedge, and for this purpose, both in farm and garden, I consider it so decided an acquisition, that I incline to tell you all I have learned about it during fifteen years of experiment. Its leaf is narrow and oval, about one-quarter the size of that of the Japan quince. It can readily be distinguished from the old Pyracantha which has large and round leaves and is not hardy.

It has endured, unharmed, a cold fourteen degrees below zero, and has been equally patient under the most severe drought we have known. The glossy, bright green of its summer foliage changes to a bronzed-green during the winter, but no pine or spruce more persistently holds its leaves during cold weather. It is clothed with strong thorns so close and stout that cattle would never attack it a second time. Even a chicken attempting to get through it would find food for repentance. It grows rapidly, and a strong plant will make shoots of one and a half to two feet each season.

If it is neglected several years, and allowed to go untrimmed, it can in two years be brought again into perfect shape.

With attention, when young, it can be kept down to a foot for borders; and for farm purposes it can be formed into a hedge five feet high. Its flowers are small, like those of the Elder, and grow in clusters about the size of a dollar. These June flowers are succeeded in autumn by showy orange berries the size of peas.

It is very excitable by the first warm days of spring, and should be always planted in autumn.

When successfully planted, I think that it meets all the requirements for a perfect impervious hedge.

For one that is not impervious, but simply ornamental, there are many evergreens well adapted. The *Hemlock*, for this, stands unrivalled. It bears the shears perfectly, takes a close and compact surface, and keeps a fresh color all the winter.

In May the light shoots of the *new* growth against the dark surface of the *old*, forms one of the nicest possible contrasts—like the cheek of a fair child against the brown one of its father.

The *Arbor Vitæs*, the *Junipers*, the *Retinosporas*, the *Yews* and the *Holly*, all make good hedges, each distinct in its character.

In noticing the broad-leaved evergreens, I have reserved to the last that which stands first among them all, and unrivalled among hardy plants of low growth—the *Rhododendron*.

Rhododendrons.—The broad, evergreen foliage, with its glossy richness, would alone

entitle it to the first rank, but when this is crowned, in June, with many clusters of flowers, each cluster large enough for a lady's bouquet, and each variety having its own color—white, blue, purple, delicate shell, cherry, lilac, mauve and crimson, the term *superb* fitly describes its appearance. There are many distinct species of this plant, but those best known are the *Arboreum*, *Ponticum*, and *Catawbiense*. The Arboreum and its varieties are adapted only to the greenhouse. The Ponticum, although hardy in England, France and Belgium, has its bloom buds uniformly killed here, while the Catawbiense has endured, without injury, an American cold of fourteen degrees below zero.

Varieties, therefore, showing strongly-marked Ponticum blood, are satisfactory to European planters, while here, at the north, they are almost worthless. Every winter gives them a blow until they finally die outright. The only desirable varieties for our climate are those produced from the Catawbiense by hybridization, and these varieties are perpetuated by grafting only. Of these, there are good European varieties for our climate, while many which are excellent in Europe are worthless here. The most entirely reliable are the varieties grown from seed in this country. In the moist climate of England it has for many years been the custom to use peat largely in the preparation of Rhododendron soil. Gardeners there are now discovering that it was a mistake, and are discarding it. In the dry, exciting air of this country peat is positively injurious, and the Rhododendron will grow most thriftily in good garden soil.

The foliage will be good in the shade; but for bloom, they should be planted in the sun. The shade and peat fallacies have been great bars to successful Rhododendron culture.

The numerous fibrous roots hold the earth so closely that a plant can be safely removed at any season of the year, while it is better to avoid doing so during the rapid growth of June and July.

They can be planted singly upon a lawn or in a city garden, and are very effective in a mass of one or two dozen. Although enduring severe cold well, they expose so much surface to the strong north winds of winter that it is better to plant them to the leeward of a house or mass of shrubbery. As a last word for this favorite of mine, I would use what is with me an almost hackneyed expression, that it is one of the plants which should be found in every garden; and if room can be found for only one plant, that plant should be a Rhododendron.

I have endeavored to describe, as concisely as possible, a portion only of the great family of evergreens. There are many others upon which my eye rests daily with pleasure, the description of which would detain you too long.

I will close by suggesting to you the value of all these dwarf evergreens, with their varied colors, for the effects which you now seek to obtain by what are known as bedding plants. They require no annual planting; but once established, they become, increasingly with each year, things of beauty, which an old writer tells us are joys forever.

A few Choice, Small Shrubs.

BY A. S. FULLER.

IF one possesses unlimited grounds, as well as an abundance of means, all obstacles in the way of making an elegant garden can generally be overcome. But mankind are not all blessed to such an extent; hence, some are compelled to be content, or at least make the most of means at command. The pleasures, however, may be just as sweet and enjoyable which are derived from moderate means as from an unlimited purse; all depending upon the temperament of the possessor.

A beautiful plant is none the less attractive when, through long years of cultivation and constant propagation, the price falls from dollars to dimes; although it must be confessed that there are peculiar fascinations which draws one after rarities. But in horticultural affairs we know of nothing so profitable to the purchaser as patience. A little delay of a year or two usually brings down the price of rare plants many fold.

If one's purse is light, the pleasures of anticipation may be slightly prolonged to suit our circumstances, obtaining those things we desire when they come fairly within reach.

The price of plants should never be considered a criterion by which we may determine their beauty or excellence.

A shrub which can be purchased for ten cents at this time may have readily brought as many dollars a dozen years ago, although its merits have not changed in the least; scarcity or abundance alone making the difference in price.

I allude to these peculiarities, or changes in valuation, in order that the reader may fully understand why some of the very common and cheap sorts are included in the following list, and many of the high priced and highly extolled are excluded.

At the very commencement I shall name three native shrubs, which are unsurpassed for beauty, and well worthy of being placed at the head of the list, namely, the

American Azaleas.—The Clammy azalea (*A. viscosa*) is common in the swamps of the eastern and southern States. The flowers are pure white, deliciously fragrant, and appear late in spring to midsummer. The nude or naked flowering azalea (*A. nudiflora*), which is also known by several other common names, such as Pinxter flower, Purple azalea and May apple, is found upon high, dry soils, and of various shades of color, from a light, delicate pink to a deep purple. The flame-colored azalea (*A. calendulacea*) is found most abundant in the Alleghanies and farther south; but it is quite hardy in nearly all of the northern States. All three of the above species, as well as their varieties and hybrids, thrive in almost any good garden soil.

There are also hundreds of varieties of what are termed Pontic azaleas (*A. pontica*) from the old world, which are perfectly hardy here; but language would certainly fail me should I attempt a description of the most beautiful varieties among the many to be obtained at our larger nurseries. There are also several of the Chinese azaleas which are quite hardy. The *A. amœna* and *A. obtusa* are probably the best known. The first has small, crimson flowers, and the latter bright flame color.

By making a selection of varieties from all the different species, both native and exotic, one can readily keep up a succession of flowers from early spring until quite late in summer.

Almonds.—Both the double pink and white-flowering dwarf almonds are indispensable to every collection of shrubs, however limited in numbers.

Calycanthus.—The "sweet-scented shrubs" are desirable for their fragrant flowers, although neither very beautiful or showy. There are several species and varieties; but the most common (*C. floridus*) is as desirable as any.

Alderleaved Clethra.—This is another of the many neglected, native plants which deserves more general cultivation. It is very common in low grounds, but thrives in almost any soil or situation. The flowers are small, pure white, fragrant, and produced in slender, upright panicles. Blooms in summer.

Crimson-flowering Currant.—The double crimson-flowering currant is an elegant, small shrub of easy culture, and, although not so showy as some other kinds, still it is one of those plants that will repay a close and intimate acquaintance. The species with single flowers, from which this double sort was produced, is a native of the Rocky mountains, in Oregon, and Washington Territory. The flowers are produced in long, drooping racemes or clusters, and at a distance resemble a bunch of our common red currants when fully ripe.

Deutzias.—There are quite a number of species and varieties of the *Deutzia;* and while all are handsome and desirable there is still room for a selection. The *D. crenata flore pleno* has double white flowers, with the outer row of petals of a beautiful rose color. There is also a variety in which the rose-colored petals are wanting. The *D. gracilis*, or slender-branched deutzia, is probably the next best. The plants are quite dwarf in habit, seldom growing more than two feet high. The flowers are pure silvery white, and produced in small delicate spikes or

racemes. Plants taken from the garden in fall and put in the house bloom quite freely in winter. All the species and varieties are as readily propagated from cuttings as the currant. No one need be without an abundance of plants after procuring a stock to work from.

Forsythias.—Plants producing yellow flowers are not so generally admired as others, although it must be admitted that the golden is nature's favorite color. Still, on account of the earliness of the Forsythias or "golden bells," as they are sometimes called, a plant or two should be admitted into the garden. The *F. suspensa* is probably the best for planting among the smaller kinds of shrubs, as the plant is a slender grower, of a half-trailing habit. The flowers are among the first to appear in spring.

Hydrangeas.—There are several native species of the hydrangea that are quite pretty shrubs, but the oak-leaved (*H. quercifolia*) is really the best of all. The leaves are large, deeply five lobed, woolly pubescent underneath. The flowers are quite large, of a whitish color, and produced in a rather loose, terminal panicle.

The old garden or changeable hydrangeas are too tender for garden culture in the northern States, although, when protected, their flowers make a fine show, varying much in color from a pale pink to a bright blue; the variation being produced by the chemical constituents of the soil in which they are grown. The queen of hardy hydrangeas, however, is the new Japan variety, known in nurserymen's catalogues as *H. paniculata grandiflora*. It grows rather tall if left to itself to come in among small shrubs. Still, as it is not a coarse wood plant, and a little shortening of the leading shoots will make fit in very nicely with the lesser-growing kinds. The flowers are white, and produced in immense pyramidal panicles a foot or more in length. This is another autumn or late summer-blooming plant, and one of the best shrubs of recent introduction.

Itea Virginica.—The Virginian Itea is a neat little shrub seldom mentioned in nurserymen's catalogues. It grows about two feet high, with rather slender stems, and oblong finely serrate leaves, which become a brilliant crimson in autumn. The flowers are small, pure white, and produced in racemes. Blooms in early spring.

Lilacs.—Of these, there are many species and varieties, but mostly rather coarse, large shrubs. Those known as the Persian lilacs (*Syringa persica*) are, however, admissible in small gardens. The white and purple are well-known handsome varieties of this species.

Quince, Japan, or Cydonia Japonica.—These are well-known elegant shrubs, blooming in early spring. There are varieties with white, pink, crimson, and scarlet flowers. They are all beautiful and desirable; therefore one cannot go amiss in making a selection.

Spiræas.—A genus containing a large number of species and varieties. They are principally shrubs of small size; but a few reach the height of eight to ten feet. Among the smaller species and varieties I prefer the following: S. callosa alba; dwarf habit, flowers pure white. *S. prunifolia pleno*, or double flowering plum-leaved. Flowers pure white, double, appearing before the leaves in spring. Reeves, double and single; both elegant sorts, with pure white flowers, blooming in May. Germander-leaved (*S. chamædrifolia*), sometimes called "bridal wreath," the small, wiry branches bending over in a half circle, and, when covered with flowers, form a natural wreath worthy of crowning a bride.

Syringa, or Mock Orange.—As long as some of our principal nurserymen persist in applying the scientific name of the lilac (*Syringa*) to this very distinct genus of plants, we suppose the masses will follow, instead of calling it by its right name, viz., *Philadelphus*. The larger portion of the species and varieties are rather coarse-growing shrubs. The *Philadelphus ranus* is quite a dwarf, bushy species, or perhaps, more properly, a variety of the common *P. coronarius* or well-known mock orange of our gardens. The flowers are white and very fragrant.

The Flower Garden.

Ivy and its Culture.

BY JOSIAH HOOPES.

IT doubtless appears strange to one who feels no especial interest in horticulture, that votaries of this pursuit should be so fickle in their admiration for certain classes of plants.

When we come to analyze this so-called fickleness, it becomes apparent that a love of variety or novelty is the guiding cause after all; and that we do not leave one set of plants for another, because we tire of the first, but for the reason that a *suite* of foliage or flowers hitherto unknown to our houses and grounds offer so much pleasure in perspective, and are so totally distinct from those hitherto cultivated, that it seems impossible to withstand the temptation of possessing them. Gradually, and almost imperceptibly, they take precedence over all else, and maintain their sway until another set of plants is introduced, which in turn ousts out the former favorites, and accepts the post of honor as easily as if there never before had been any to dispute the position.

These remarks seem applicable to the somewhat recent fashion for collecting together all the many varieties of the well-known ivy. Certain it is that it requires some movement of the kind to make our people interest themselves sufficiently in any class of plants so that they will search for the gems which otherwise would lay hidden away, or perhaps be found only in some isolated garden where horticulturists generally would never make their acquaintance.

The common English and Irish ivies are too well known to require any introduction at our hands. They are sufficiently hardy to stand our winters, at least as far north as Philadelphia, and are to-day without a rival, for covering buildings as well as for innumerable uses in ornamental gardening.

For vases and hanging baskets they are especially adapted, and for edging beds, when light wire frames are used for supports, they surpass anything of the kind ever tried. But for indoor work, where the refreshing green foliage always imparts a cheerfulness to the surroundings of our homes, the ivy shows to the greatest advantage. So very many contrivances are in use to ornament the rooms and hall-ways of dwellings, that it is perhaps unnecessary to enumerate even a small portion of them here, but we may say that in shaded positions where most plants would perish, this vine flourishes in perfection.

In the open air it always prefers an exposure not directly facing the sun all day long, and due north is really the best for a vigorous growth—the essentials being coolness (not *intense* cold), moisture and shade.

Thanks to its accommodating nature, however, we may use the various varieties in almost any position on the lawn, although we must not expect in every case the best results.

The species of *Hedera* are now so cut up and undistinguishable, on account of the hybridizer's art, that anything like a correct scientific classification is entirely out of the question. True, Shirley Hibberd, in England, has undertaken the task, but we fear that even horticulturists are not unanimous in regard to his rulings in the matter, therefore in the following brief notes on some of the choicer kinds, we shall merely allude to them by those names which gardeners have assigned to each:

There is a class of these plants usually termed Tree or Bush Ivies, on account of their dwarf, bushy habit of growth. Unlike the other forms, these have very little, if any inclination to climb, and by judicious trimming occasionally, may be fashioned into very attractive garden ornaments. The foliage is entire leaved, and in this respect differs also from the climbing sorts. "Sooner or later, however," says Loudon, "it resumes its native habit, and throws out rambling, or creeping shoots, with five-lobed leaves, like the common ivy."

Aurea maculata, as its name implies, is a pretty form, having the foliage distinctly marbled over with yellow of different tints.

Marginata argentea closely resembles the above, excepting in the color of its markings, which in this are white. *Aurea marginata*

has the leaves finely bordered with yellow, and is one of the best of its class.

Climbing ivies are formed into two easily distinguished groups, the one having green leaves, but of different sizes and shapes; the other consisting of the variegated varieties. They are all worthy of cultivation; indeed we know not of one that might be termed really poor.

Commencing with the green-leaved kinds, we of course allude first to the old species which has been in cultivation for centuries—the ivy of "song and story"—Hedera Helix (common English ivy). In England, it is no uncommon sight to find this species clambering over the trees and brushes, and wreathing them with the most graceful of garlands; in the vicinity of rocks it tells with great effect; but clambering over the old ruined towers and castles, festooning the battlements and turrets, covering up the time-stained walls with its wealth of rich glossy-green foliage, is when its beauty is seen in perfection.

One of the oldest and best of its varieties is the *Irish* or *Giant Ivy* (var. Canariensis), a native of the Canary Islands, but introduced into Great Britain very many years ago. It is preferable to the species on account of its more luxuriant growth and larger foliage, yet possibly it is less hardy. As a basket plant it is exceedingly fine, and is still in demand, notwithstanding the many new and beautiful forms. The *Palmate-leaved Ivy* (var. digitata) is very neat and pretty for hanging baskets, and for trailing over rockeries. The foliage is deeply divided, not unlike the fingers of a hand, hence the name.

The *Golden-fruited Ivy* (var. chrysocarpa) is another of the older varieties, and one which has been classified as a species by some of the authorities. It is a native of the north of India, and is readily distinguished by its large foliage and yellow fruit. *Tooth-leaved* (var. dentata), is precisely what its name suggests; differing from the species in having the margin of its leaves very dentate. One of the most curious and distinct ivies is a dwarf form just introduced under the name of *Conglomerata*. It is a decided miniature in all its parts, presenting an unique twisted or plaited arrangement of foliage, the latter small and unlike the remainder of the family. It makes a very neat specimen for pot culture or for basket work. Another of the recently introduced varieties, belonging to the green-leaved section, is termed *Rhomboidea obovata*. This is likewise a very distinct variety, the foliage differing in outline from that of all the others. It is of a deep green tint, and a vigorous grower.

Rægneriana is now becoming well known and justly appreciated by our gardeners on account of its strong healthy growth and beautiful large leaves. It is employed extensively for vases and baskets, and in fact all the uses to which the family is applied. *Algeriensis*, like the last, is a noble variety, and well worthy of a place even in small collections. *Donerailense* belongs to the same category as the above.

Sagittæfolia or the *Arrow-leaved Ivy* is one of the neatest little varieties that we have seen. The delicate leaves forcibly remind one of the narrow-leaved form of Sagittaria or Arrow-Head, a common aquatic plant.

Inequæloba is remarkable for the diversity of its foliage, or strictly speaking, for inequality of the lobes. The foliage is large and glossy.

Leaving this section of the ivies, we will call attention to a few of the handsome variegated kinds, as among gardeners this is considered the most attractive class of all. The florist forming a too hasty impression at first, will very likely object to their marked foliage, believing, as is sometimes said of them, "they have a diseased look." Not so, however; for although variegation may be caused in the first instance by some form of unhealth in the plant, yet these sports are increased and grow with the utmost vigor, until the variegation has become a fixed fact to a greater or less degree. They are all, however, liable to sport, as it is called, back to the original green type, but by cutting this out, they may be made to retain the desired color.

These variegations are now so numerous, that to make a small selection therefrom will,

as a matter of course, leave many favorites unmentioned; however, if the following should be procured, we feel satisfied the owner will be amply repaid, no matter how beautiful may be the charms of those whose "praises have been left unsung."

The var. Canariensis has two very pretty sports called *aurea maculata*, and *marmorata alba;* the first with large leaves spotted and evenly marbled over with yellowish markings; the latter with white specks and veinings that impart a very pretty effect. *Algeriensis fol. variegata* is a grand variety with very distinct and regular coloring. *Aurea maculata* (not canariensis aurea maculata) has fine-sized foliage, which in many instances is pure yellow in all its parts; again one-half the leaf will be of a golden tinge, and occasionally a few yellowish spots will be the only deviation from the usual green color. One of the latest as well as one of the best of these variegated forms is termed *Aurea spectabile*. The growth is quite vigorous, although the leaves are not over medium in size; color bright emerald green, merging into a rich self or marbled gold color. We predict for it a hearty welcome among lovers of this class of plants.

Marmorata elegans has a rather small or medium sized leaf, which is very prettily mottled with white. It is exceedingly neat for hanging baskets and vases, as well as for making conspicuous edgings for flower beds.

Minor aurea maculata has a neat miniature leaf prettily spotted with pale yellow; it makes an excellent contrast to other varieties. *Rhombea argentea marginata* is rather a long title for one of the neatest of plants. The foliage is not large, but very evenly and thickly sprinkled with white dots and veinings. It has been in use here for some years, and has become one of our most popular kinds. We will close our descriptions with the *Angustifolia variegata*, having foliage tinted with yellow, white and pink in a charming manner; these colors are so happily blended together as to remind one of a tender stove plant. Hanging over the edge of a basket, it forms one of the greatest attractions we can introduce; and for pot culture, when trained over a wire frame, and grown in partial shade, we know not of its superior.

Our advice to those of our readers who have not tested these improved forms, is to select a few of the most showy as companions for the old green-leaved species, and they must be convinced how much more cheerful the aspect of their baskets and vases will become. We do not insist on the total exclusion of the latter, but we do recommend a more general use of the former.

A few Hardy Herbaceous Plants.

BY A. S. FULLER.

PROBABLY there are many persons who can trace their love of flowers to a few favorite herbaceous plants which greeted them in growth in the old homestead garden. The collection may not have been very extensive or rich, but a few clumps of grass pinks, holyhocks and sweet rocket, are frequently sufficient to create a taste for flowers in a child, which in after years becomes developed into a passion that brings pleasures in proportion to its intensity. It is well for some of us who have grown old, while feasting among the novelties annually introduced from various parts of the world, to occasionally remember the few old, good and cheap plants which once filled our hearts with pleasure, even though they did not fully satisfy.

The costly conservatory, or the well built and substantial dwelling-house, warm enough in winter to insure the growth of "window plants," are not within the reach of all, but there are few outside of cities who are deprived of the pleasures of either a small or large garden in which flowers may be cultivated. Among the many thousands of species and varieties of hardy herbaceous plants in cultivation, the "ideal of beauty," even of the most critical in taste, should be found, and I think can be, if diligently sought.

It must not be supposed however, because plants are hardy, or will withstand considerable neglect, that good care and culture are entirely unnecessary. The kinds which I propose to name require a good rich soil and

clean culture, in order to secure full development or perfection. Also when the clumps or roots become large and old they need dividing and planting in fresh soil, the autumn being generally the best season for performing this operation.

In the more northern states a slight protection in winter, by covering the crowns of the plants with coarse manure from the barnyard, will be found beneficial.

The following list comprises some of the very best kinds in cultivation without regard to rarity:

Achilleas (Zarron).—These are low growing, spreading plants with neat foliage, hardy and bloom freely. The *A. millefolia rubra* has very small deep red flowers, produced in dense flat corymbs, while those of *A. Ptarmica pleno* are about three-eighths of an inch in diameter, very double and pure white; very neat for working in bouquets. Both species bloom in summer—July and August.

Actæa alba (White Baneberry).—A native plant and quite common in rich low grounds and woods, but is well worth a place in the garden. Plants grow two to three feet high, producing long spikes of small pure white flowers.

Anemone Japonica.—An elegant plant blooming in autumn; flowers, rose color. A variety of this known as *A. Honorine Joubert* has pure white flowers, appearing at the same season as the first. The plants grow about two feet high, or a little more in rich soils.

Anthericum liliastrum. — Flowers pure white, lily-shaped, borne on stems a foot high. This is a pretty little plant blooming in June, and although long known to our florists, it appears to be somewhat scarce in gardens.

Aquilegia or Columbine.—Old and well known plants of various shades of color, and both double and single varieties. The *A. cærulea*, from the Rocky Mountains, is an elegant species with blue and white flowers. Seeds of all the choice species and varieties are now to be had at the seed stores, and no one who has a garden need to be without a showy bed of these plants.

Arundo Donax variegata.—This is a coarse growing species of reed or grass, the stems frequently reaching a height of ten feet. The leaves are elegantly striped with green and white, a very desirable plant for the center of groups as well as to plant singly. Propagated from the green stems in summer, or by dividing the roots.

Campanula (Canterbury Bells).— There are many species and varieties, but the following of these are my choice: *C. grandiflora*, large blue flowers. *C. grandiflora alba*, flowers pure white, and the old peach-leaved (*C. persicifolia*).

Clematis integrifolia, or the entire leaved clematis. A low growing plant, with fine blue flowers bordered with white. The greater part of the species of clematis are climbing plants, but there are a few with erect, self-sustaining stems, like the one named, which I consider the most showy, although the small white flowering *C. erecta* is quite pretty.

Convallaria majalis (Lily of the Valley).— This old and well known plant is one of the indispensable flowers in every garden, and I may add is superior to any of the varieties raised therefrom, such as the double white, red, etc., etc.

Delphiniums (Larkspurs).—Among the tall growing sorts (*D. elatum*) my choice would be the *D. formosum*, deep azure blue flowers with white center, blooming in July and August. Among the Chinese varieties there is less choice, as the colors vary from pure white to deep blue; all handsome and readily produced from seed.

Dicentra spectabilis (Bleeding Heart).—If limited to but one plant this would certainly be my choice. It grows freely in almost any good soil, never failing to bloom early and for a long time. In habit it has no equal in graceful elegance, and its abundance of rosy crimson flowers make altogether a plant to be admired by the million. Although introduced almost or quite a quarter of a century since, still there are thousands of gardens in which it has not as yet found a home. It may be rapidly propagated by dividing the roots or by cuttings of its half-ripened flower stems in summer, placed in almost any shady spot in the garden.

Hints on Training Plants.

BY A. S. FULLER.

VARIETY in gardening does not consist wholly, as some persons appear to suppose, in the number of kinds or species obtained and cultivated. Diversity of form obtained through training of plants will frequently produce almost, if not quite, as beautiful effect as a great variety; herein lies much of what is termed skillful and successful gardening. Suppose, for instance, one has but the two varieties of the dwarf double flowering almonds, the white and pink. A clump of each are pretty ornaments to start with, then a change can be made by putting the pink sort in the center of the group, and a row of white outside, and in such a position that one can look down upon the clump instead of a side view. Then this order may be reversed, or a long ribbon of pink and white may be made by planting a row of each, side by side.

Another change, and a far more elegant shrub produced, by budding these plants upon peach or plum stocks, and four or five feet from the ground. Young, healthy sprouts or seedlings should be planted in spring, and the stems cut off at the desired height, and if there are any side branches, shorten these to within three or four inches of their base. Young shoots will issue, and into these the buds are to be inserted in July or August, or when in proper condition for the operation. A stock may be budded with one variety or a few buds of the white almond put on the center shoots, and a row of the pink on the outside. It is always a good plan to put in more buds than are desired, if all should grow, which does not always follow, even when the budding is done by a skillful hand.

The white-flowered sort has quite stiff upright growing branches, but those of the pink are long and slender, and when worked on such stocks as I have described will bend over most gracefully, especially when loaded with flowers. The elegant appearance of such a shrub can readily be imagined if never seen by any one who is acquainted with the plants named. Of course I am presuming that everybody who has a garden knows how to bud and graft trees, and if they do not, they should learn without unnecessary delay.

Perhaps just the few hints given above will set the reader to thinking how other departures from standard types may be secured, if so, the accomplishing of the same will depend upon the persistency of the effort in that direction.

Many persons, however, are prone to think that it will not answer to depart very widely from the natural "bent" of the plant, therefore their climbing plants are always treated as climbers, never as bedding or low trailers. A prairie rose looks well upon a trellis, or trained to a stake, also when pegged down to the ground forming a rosy cushion only a few inches high. If weeds and grass are likely to interfere, it is a very easy matter to cover the ground for a few feet about the main stem with gravel, old bark, or anything which will prevent the weeds growing through. All kinds of climbing plants may be treated in the same manner in order to produce a variety of ornaments. Honeysuckles trained over an old rock or heap of stone look fully as well if not better when covering some costly trellis. *Wistarias* may be trained as low or high shrubs, although they are classed among the climbers. Because a plant naturally grows tall and slender, it does not necessarily follow that its form cannot be modified to suit our convenience or taste in the matter. By lopping off a branch here, and bending another there, natural forms may be changed without seriously interfering with natural laws, and by a little forethought and consideration, as to the effect which we desire to produce, there is little danger of falling far short of the object sought.

There are usually more or less waste materials about a place which can be used to advantage in this way. The old plum sprouts may be used as stocks upon which to work the double flowering almonds, peaches and plums. The cherry and apple seedlings can also be turned to good account in the same way; in fact the stone heaps and rubbish piles, as well as old stumps may become useful as well as ornamental objects about a place by a little skillful manipulation.

Gardening.

Notes from my Garden.

BY PORTE CRAYON.

THE winter of 1872–73, with the thermometer touching twenty-six degrees below zero, was so disastrous to the shrubbery and fruit trees of this region, that our horticultural notes for the following summer were omitted, as no one is particularly anxious to publish his failures, howsoever instructive they may be supposed to be to the outside world.

Time, however, and boon Nature have well nigh repaired all evils which were not past remedy. Our bearing peach and cherry trees, which died outright, have been replaced by hardier stock, while the fruitless apples, pears, plums and vines of 1873 have, this season, exhibited crops unequalled in quantity and quality.

Our small fruits have been uniformly productive and satisfactory, the result of winter protection and careful summer culture. We can confirm and commend the practice of mowing the strawberry beds after the crop is gathered, but have otherwise no new experiences to report.

As our numerous fruit trees grow and spread, our garden bids fair, in time, to become an orchard, and our interest is consequently becoming absorbed in its larger and more showy products. With the Early Harvest, Maiden's Blush, Rambo, Northern Spy and Winter Sweet Paradise in full bearing, we now eat our own apples all the year round.

This last named apple, imperfectly described by Downing, is a great favorite in this region, and with ordinary care will keep until June.

Last year we packed a barrel of them in ground plaster and ate them in perfection on the 10th of July following. It is a very handsome fruit, large and well formed, with a greenish yellow coat and a rich red cheek. Its flesh is peculiarly light and fine grained, sweet, without a trace of acid, and with a delicate perfumed flavor like that of the banana, or a Belle Lucrative pear, well ripened. Our trees, regularly cultivated and manured during the eight years we have had them in possession, have never failed to yield us full and increasing crops, with no off years.

Of plums, the Early Harvest, Imperial Gage, Perdrigon and General Hand were each in their season loaded with perfectly matured and delicious fruit.

We fight the curculio as usual by jarring the trees over a sheet, commencing as soon as the bloom falls and continuing as long as any of the enemy can be found, usually from two to three weeks.

A neighbor who brought in some very beautiful plums, last season, attributed his success in raising them to a device, accidentally suggested by the following circumstance: He had a large and thrifty tree overhanging his cottage roof, which bloomed and fruited annually, and was as regularly harvested by the curculio—so thoroughly, that for several years he never even obtained a specimen to test its quality. Having occasion to change the location of his cooking stove, he put the pipe through the roof, immediately under the overhanging limb, and the following season that portion of the tree was loaded with fruit, which matured perfectly and has continued to do so ever since. Acting on this hint, he places an old earthen or iron vessel under each of his plum trees, and keeps therein a smouldering, smoking fire, during the curculio season, which effectually secures the growing fruit.

Our dessert baskets have been supplied this season with the most delicious pears, from the 15th of August until Christmas, the succession being composed of the following varieties: Bloodgood, Flemish Beauty, Belle Lucrative, Duchesse, Seckel and Vicar of Winkfield.

We had specimens of the Duchesse weighing seventeen ounces. Seckels four to the pound and unapproachable in flavor. Among all, the Vicar was a most agreeable surprise; we have hitherto regarded it as a coarse, astringent fruit, only fit for cooking, and regretted to see its unworthy stock the most thrifty

and rampant grower in our small collection. However, as the fruit was large and well shaped, and hung thick upon the sturdy branches, about the middle of October we condescended to gather the crop, nearly two bushels, and spreading them on the garret floor, covered with an old carpet, and mentally devoted to the stew-pan and the children.

In two weeks they began to grow yellow and mellow, and were pronounced decidedly superior to the Duchesse, and if lacking in the daintier perfume of the Lucrative, or more delicate flavor of the Beauty, yet as a juicy, sprightly and refreshing dessert fruit, equal to anything our garden produces.

Owing to the refreshing rains, during the ripening season, our grapes this year escaped the ravages of the bee tribe, nevertheless the birds, including some English sparrows, lifted about one-third of the crop, confining their depredations exclusively to the Concords.

We fruited the Delaware, Rebecca, Maxatawney, Rodgers No. 4, and some other of the more esteemed and delicate varieties, but after tasting and comparing all around, we got tired of playing the *dillettanti*, and concluded with the sparrows, that for all essentials the Concord is still the President of American Grapes.

Meanwhile, we have not neglected the kitchen garden, and some of our experiences therein might possibly be instructive to your unskillful readers, but after boasting of our successes with rosy-cheeked Belles, soft-hearted Beauties, and aristocratic Duchesses, we rather revolt at the recollection of our victories over potato bugs, cabbage worms and squash grubs, vulgar triumphs, which, however essential to good living, cannot be reckoned among the glories of horticulture.

Berkeley Springs, West Va.

Plant Development.

BY ALEXANDER W. COOPER.

A YEAR ago last January, having bought some barrels of Early Rose potatoes out of a Savannah store, they were planted the last of January on a piece of well drained, sandy, hammock soil. Early in February they came up finely, and were remarkable for a profusion of stalks to every set; the sets were half potatoes which had been cut from bud end to heel. Towards the end of February a severe frost cut down all the stalks above ground. A few weeks after in March they again came up vigorously, but a green worm, striped handsomely with white, made its appearance and kept the leaves close shaven until it was time to dig the potatoes. A great many small potatoes were unearthed and very few large ones. Plenty of small tubers were left in the ground, which was also planted in something else, and so kept clear of grass and weeds till next March, when a good stand of volunteer potatoes made their appearance, none of them throwing up more than two stalks, and most not more than one. The better to be certain of this fact, many were dug up, and all verified the fact, and though the crop was from tubers, many of which were no longer than cherries, yet the yield was fair, and the product consisted almost entirely of large potatoes, nor did a beetle or worm make their appearance. So much for the natural product of a seed potatoe which has been in the bosom of mother earth from seed time to seed time.

We will now turn from this blessed provision of Providence to that other consolation, and see the same law of production regulating it also.

Sugar cane grows like a reed, there being joints, and hard rings between these joints known as knots. While the joints are pithy, succulent, juicy and sweet, the knots are hard, dry and bitter to the taste, there being about them that peculiarly bitter, unpleasant taste that there is in the eye of maize or in the young leaf of early corn, and on each of these knots is an eye, and very knowing looking fellows they are. Each stick of cane has from ten to a dozen, or even as many as thirty, of these eyes on it, and if the cane is cut in October and carefully preserved in windrows, a hill can be produced from each eye, and this is the common practice. The cane is cut in October, laid in windrows, planted in January or February, and a hill does come up from each eye.

Last fall a colored man sold me a hundred

stalks of selected cane, at five cents each; they had been cut close to the ground, and the tops were undisturbed. A suitable piece of ground had been prepared, and in the latter part of October, before any frost had fallen, they were planted. The way they were was this: the land having been put in good tilth, furrows were opened nine inches deep, five feet apart, the butt of a cane being placed at the bottom of this trench, it was laid along it obliquely, one joint of the top being left above ground, and all else covered. The winter was severe, and early in spring, digging up several stalks, I found that a quantity of roots had grown out from each knot or ring. The cane was very late, and only commenced to sprout in March, when each stick shot up one solitary sprout from an upper eye. As single canes had been laid along the trenches, each of which was about five feet long, after all were up, there was an interval of five feet between each shoot, making a poor stand, but as the season advanced numerous strong tillers appeared, and the patch now presents the appearance of a field covered with heavy bunches of canes from ten to twenty to a hill, so thick and so strong as to leave no doubt, in my mind, that it is no robbery to cut out half a dozen from a hill to chew after supper in the quiet solitude of our still evenings; and reflect that while seas and rivers divide us, the time draws near when "the Lord shall utterly destroy the tongue of the Egyptian sea," "and there shall be an highway for the remnant of his people."

The Larch, a candid opinion.—The European Larch has so often been recommended for ornamental purposes, that the following criticism from a correspondent of *The Rural New Yorker* will bring an opposite opinion to notice: Perhaps I may excite the wrath of somebody (which will be nothing new) if I speak my mind in regard to the European Larch as an ornamental tree, but without fear of consequences I record my opinion, and it is that it is the ugliest tree ever introduced in lawn or garden. I am writing this within a few feet of what many persons would call a very handsome specimen of this tree, some fifteen or more years old. From the very ground to the topmost twig it is as perfect as a large tree well could be, forming a pyramid of green, but a few days later the leaves will drop, and then its ugliness will appear in the form of drooping branches loaded down with the dark, dirty, brown cones of the past half dozen years.

While the larch is young, and before the cones appear, it is really a pretty tree, with its very graceful, slender branches and light green foliage, but after the first ten years the branches become almost covered with cones of various ages, some brown, others black and half rotten, the whole being about as ornamental as an old plum tree covered with black knots. As a timber tree the larch no doubt ranks high among the useful kinds, but as an ornamental tree it does not fill the bill, in my estimation.

The Yellows.—Mr. Thomas Meehan, in speaking of this subject, believes there is no mystery as to its cause, and says: "If you dig around a peach with the yellows you will be first struck with a 'mushroomy' smell. Picking out the roots and examining them with a lens, you will see millions of thread-like fibres, which are the mycelia of fungi. These eat the young fibres, and leave only the main roots, through which all the nutriment of the plant has to be gathered; and as an old root is unable to do much more than draw in water, the tree becomes in a measure starved, and the leaves become yellow, just as they would be if growing in poor soil, which, though the plants might have plenty of roots, furnished nothing for the roots to eat. To have plenty of roots and no food, is equivalent to having plenty of food and no roots. The remedies which look to the destruction of this root parasite are employed. Hot water has done it, so has a weak solution of salt; others have found a weak solution of potash succeed."

A Beautiful Tree.—A correspondent of *The N. Y. Tribune* writes in praise of the *Deciduous Cypress*: As I write, a branch waves its feathery-like foliage directly in front of my window, and that leads me to wondering why this attractive tree is not more fre-

quently planted. It affords a lesson to those who have a mistaken idea that plants should have the same condition of soil in their new homes as when growing in their native haunts. The Deciduous Cypress is a native of low, swampy grounds, but when removed to high, and even sandy localities, it will flourish equally well. The one alluded to is growing under just such conditions, and I think it difficult to excel. As a center-piece in a group of round-headed trees, it looms up a perfect pyramid above them all, displaying a peculiarity of verdure at once distinct and attractive.

Beets for Winter.—I know it is a common practice for dwellers in the country to make but one sowing of beets. They plant early for "new beets," and then what remains until autumn is for the winter crop. Such people have not the least conception what constitutes a juicy, fine flavored root when vegetables are in demand. The proper time to plant is in June, not earlier, and they will then arrive at maturity before the frost is severe. If dug and carried carefully to a damp cellar, where they will not freeze hard, and buried in sand, one can enjoy a first-class article all winter. It may appear like heresy to advocate planting a light colored variety, but it is my choice nevertheless. I adhere to the Early Bassano, all the season through, as being the sweetest, most tender, as well as the most profitable kind I have ever grown.—*N. Y. Tribune.*

Plant English Walnuts.—The recommendation to plant English walnuts is very pointedly enforced by the following experience of the editor of the *Germantown Telegraph:* "Some twenty-two years ago we planted in our stable yard, now a part of the garden, an English walnut tree, at the request of a valued friend, who died two years after. He said in a dozen years it would begin to bear fruit, and thereafter afford sufficient for a family; that his father had many years before planted three such trees in spots of ground that were useless for cultivation, and they yielded a large supply. We followed his advice and planted this tree, which has for several years given us a fair supply of fruit, but the present season we have gathered over one bushel, it never before having yielded more than a peck. There are now a number of these trees in this neighborhood coming into bearing, showing that they do very well here; but this is about the farthest point north that they will stand the severity of our winters. Some eight feet of the top of the tree upon our premises was killed in the severe winter six or seven years ago."

The Elm—Its ornamental value.—A *Tribune* correspondent speaks of the native white elm in high terms: "It is a grand tree when fully grown—in deep soil, and with room for its magnificent spread of branches. Its leaves are more translucent than those of other elms, and show a beautifully bright green when viewed against the sky. But it must be understood that for street planting or for small grounds this fine tree does not suit. When young it looks like some young people, scraggy, lean, long-limbed, unfilled and disproportioned. For streets, etc., there are some varieties of the English elm that are extremely fine—erect, massy, full of light and shade. They graft readily on other elms. All elms vary extraordinarily in individuals from seed. We have an avenue row grafted at uniform height, with a round and very compact headed sort—like the globular-headed acacias (locusts) in front of the Hotel des Invalides."

Keeping Celery.—A correspondent of the *Germantown Telegraph* says: A friend of mine has kept his celery through the winter now for several years by standing it in spring water about an inch in depth; and kept thus it continues to grow and send up fresh branches, so that he has cut nicely blanched, tender tops two and three times in a winter. My trouble with the trench system has been meadow mice, which appear to be as fond of the plant as I am, and make sad havoc with it. Otherwise it was the best way to keep it, which I had an opportunity of trying.

Currant Cuttings.—A Wisconsin amateur, who used to have a great deal of trouble to make currant and gooseberry cuttings or slips grow, at last tried the following plan, and succeeded:

"I boiled some potatoes until they were

nearly done, and then stuck one on each slip and put it in the ground. Every slip sprouted and grew well all summer, with one or two exceptions. The idea of putting the boiled potatoes to the end of cuttings is to furnish and keep moisture enough for them to grow until the roots become large enough to gather this moisture and substance from the soil. I never tried it on grape cuttings, but do not see any reason why it would not do as well with grapes as with anything else."

Ashes for Pear Trees.—A correspondent of *The Prairie Farmer* had bad luck with pear trees until he used ashes, when they prospered without fault: Thirty-six years ago, I put out pear trees; they grew, bore a year or two, and died out at the root, all of them. I bought more and they grew and died the same way. I saw on four places near me the old trees still bearing. I saw that every one that was left on the old places had been set near the first cabin and ash-hopper, where the soap was made and the refuse ashes thrown out. So I bought more trees, and began to plant ashes under them. They are a beautiful sight now, loaded with fair fruit. This is their third year of bearing. I shall go on with the ashes as long as God leaves me here, or until the trees die. If they do, my children will have my experience.

Germinating Seeds of Locust Trees.—A correspondent of the *Scientific American* says: "The seed of the common locust tree will not only stand the temperature of boiling water, but will always fail to grow unless boiled for eight to ten minutes. My father planted about 15,000 seeds of the common locust on four acres of land, and only about fifty seeds germinated. We now boil them for ten minutes, or place them in cold water and allow it to come to a boil, and remove them three minutes afterward. These seeds will grow finely after a large brush pile has been burned over them. These are facts, occurring every year, to my personal knowledge."

Remedy for Cabbage Worms.—A correspondent of the *Country Gentleman* states buckwheat flour, sifted through a sieve early in the evening or in the morning while the dew is on, will effectually eradicate cabbage worms. Two applications (and often one) will do the work. He has succeded in raising splendid cabbages, while his neighbors, who did not use the remedy, have invariably failed. It is far preferable to hellebore, or any other article for the purpose, and has the advantage of being harmless.

Garden Turnip.—A gardener writes to the *Journal of Horticulture*, London, that he finds the Early American White Strap Leaf a much quicker grower than either the Early White Dutch or the Early Stone sorts, as it comes into market some ten days ahead. In sowing he gives the ground a good dressing of soot and ashes, mixed equally, as it prevents the ravages of the fly; it is also a good manure.

Sawdust for Celery.—The editor of the *Journal of Horticulture*, London, says sawdust is a good thing for earthing celery, placing it between the rows and around the plants after the leaves and stalks have been brought together, pressing the sawdust about them, so as to lie compact and insure blanching perfectly. It is better, he thinks, than soil, not being so liable to cause the stalk to rot, and is a good protection against frost.

For Destroying Caterpillars.—A formula recently introduced in England, consists of a mixture of coal dust, common salt, and flour of sulphur, to be scattered, just before a rain, over freshly-plowed land. To exterminate caterpillars on trees, they may be sprinkled with a solution of one part of sulphide of potassium in 500 parts of water. This, it is said, will kill the insects, and do no harm to the trees.

The London market gardeners pay $200 per acre yearly rent for the land they cultivate, and their average profit amounts to $500 per acre. One English penny (equal to two of our cents) per square yard is equal to $100 an acre, and as there are nine early lettuces raised in every square yard, these figures are not at all improbable, in fact some of our market gardeners "go several better" than this, but these gardeners are few.

Fruit Culture.

Plums on Peach-roots.

I CLAIM that my plum trees, grafted on peach roots, are just as healthy as any of my neighbors'; that the principle is correct; and if the facts do not coincide with the popular theories of the day, then it is bad for the theories. If any one can tell me why plums on peach roots will not do equally as well as those budded on plum roots, in a country where the peach thrives with unexceled rigor, then I shall have to assume another position. The opponents of this system claim that the "borers" soon destroy the peach root. I admit that, but the man who is too lazy to devote a few minutes, once a year, to killing them, don't deserve to have plums, or peaches either. Practice, after all, is the sure test to prove such disputed points as the above, and practice, in this case, says, that in peach countries the peach root will thrive as well—yes, I will even say better than the plum, but in heavy clay soils, the latter is the better stock of the two in all probability; yet I suppose there are plenty of "Walking Encyclopedias" similar to a neighbor of mine who are ready to argue, that "it is cheating, because it is."—*Josiah Hoopes, in Tribune.*

Training Grapes.—A Maryland correspondent of the *Country Gentleman*, writing of training grapes, spirally on stakes, says he believes it gives better table grapes than are produced by other methods; and he gives a description of a contrivance which does away with the trouble of looking up materials for tying, such as willow, twine, etc., and in fact makes the stakes permanently *self-tying*. Wire staples are driven in the stake about two inches from the top, and on opposite sides—one staple for each cane. The staple must be large enough to admit the end of the cane, and also a little wedge, formed from grape-wood trimmings. His plan is to first twist the cane around the stake, cut it off about three inches above the staple, then bend the end back carefully and insert it in the staple, put in the wedge on the outer side of the cane, give it a tap with a tack hammer, and the work is done. Of course, it is understood that the canes are to be renewed yearly, as they should be to get the best results. This "patent" is for the use of all good grape-growers—free of cost.

Pear Blight Remedy.—Mr. G. F. B. Leighton, President of the Norfolk, Virginia, Horticultural Society, finds that the remedy for pear blight, recommended by the Commissioner of Agriculture, has proved successful in Eastern Virginia. This remedy is made and applied as follows:

One pound of sulphur added to six or eight pounds of carbolate of lime, reduced to the consistency of thick whitewash, is applied to the diseased parts; where the bark is diseased remove the outer portion before making the application. Mr. L. says he has used this with magical effect on blighted or diseased trees, but writes to the *American Farmer* that in future he will "use the formula recommended by the Hon. Wm. Saunders, of Washington, who has charge of the public grounds, as being more economical than the above, on account of the volatile nature of carbolic acid: To half a bushel of lime add four pounds of sulphur—slake to the consistency of whitewash, and when applied, add half an ounce of carbolic acid to each gallon of wash, and apply as above directed."

Lime for Apple Trees.—A successful pomologist of New Jersey writes the *New York Herald* that he once noticed that a tree standing in the immediate vicinity of his dwelling had all at once put forth with renewed energy, and he was at a loss for some time to define the cause. On examination he found that a quantity of lime, which had accidently been spilled and rendered worthless by becoming mixed with the refuse, on the stable floor, had been thrown at the foot of and around the tree, and to this, as the principal cause, he immediately accredited the revival and renewed fructification of the tree. Taking the hint from the incident, he purchased twelve casks of lime and applied half a bushel to each

of the trees in his orchard, and found that it produced immediate beneficial effects. Not the health of the tree only but the quality of the fruit also was greatly improved. The *Herald* adds that it has known some farmers to make it a regular practice for a succession of years to throw caustic lime around their apple trees in the spring and summer.

Orchards in Grass, or not—which will you have?—*The Practical Farmer* describes an experiment made on the Eastern Experimental Farm of Pennsylvania in a standard Bartlett pear orchard. One portion had lain in grass five or six years, and had formed a tough sod. This was carefully and thoroughly plowed last year. Another portion had been cropped with vegetables until within two years, when it was seeded to grass. Both portions had been alike dressed with fresh ashes a year ago at the rate of one bushel per tree. Both set a heavy crop of fruit this year. The trees on the portion two years in grass ripened their fruit soonest, dropped their leaves prematurely, and the fruit was smaller than the other. The trees on the portion plowed last year retained their leaves late, the fruit was large and perfect, and sold at $1 per crate wholesale.

A New Tomato.—The *Detroit Tribune* is in receipt of a specimen of a new tomato, brought before the public for the first time this year, by John Ford, of Detroit. The quality of the fruit is superior to that of any early tomato with which we are acquainted. It grows very smooth, of fair size, and is entirely free from the hard, woody portions with which Hathaway and other early sorts are troubled. The fruit was shown to the members of the Fort Wayne Horticultural Society at their August meeting, by whom it was carefully examined, and named Ford's Early Cluster. Mr. Ford stated that three years ago he noticed among some Trophy tomatoes a plant ripening earlier and loaded with fruit. He preserved the seeds separately, and planted them last season. The plant retained these characteristics fully, and so again the present year; and he feels sure it is a valuable addition to the list of tomatoes, ripening two weeks sooner than any other variety.

White Doyenne Pear.—This standard old favorite in Western New York has never failed to give good crops. Trees twenty-five years old. Size very large, nearly all being one-half pound and upwards in weight, most beautifully colored and of unsurpassed quality. A neighbor is very successful with this variety grafted on a species of thorn. His crop is not abundant, but the size is enormous, weighing nearly or quite a pound each. This variety has been abandoned in the East from its liability to crack. We never had anything of the sort here. The quality is always best, and cannot well be surpassed for flavor.—*O. F. T.*

Grapes.—In a discussion on this fruit by the American Pomological Society at Boston, Mr. Jno. Saul said of the *Maxatawney*, that in the District of Columbia it is, without exception, the finest of light grapes, equal to the *Frontignan;* and that he had known it very productive. He had seen a vine on the side of a house, which reached the third or fourth story, and was loaded with fruit.

Pears near Norfolk, Va.—We regret to hear that Mr. G. F. B. Leighton, famed for his splendid pears, last season had nearly a total failure of his crop. He estimated that he would not ship 30 bushels, instead of some 3,000 as usual.

Strawberries.—A German correspondent of the *Cottage Gardener* states that the only best strawberry for preserving is the La Constante. For large fruit the variety known in Germany as the Unser Fritz is used for growing the largest and finest fruits.

Fruit in Michigan.—Western Michigan has 900,000 peach trees, 140,000 pear trees, 30,000 plum trees, 25,000 cherry trees, 170,000 apple trees, 10,000 quince trees, and 180,000 grape vines. A large area is also devoted to the culture of berries.

The Grand Haven Union says: It is now well understood by the intelligent and practical peach growers that cultivating among peach trees after midsummer must hereafter be stopped.

Window Gardening.

Easter Flowers.

BY ANNE G. HALE.

FLOWERS, being considered typical of the resurrection, are in great request for the celebration of Easter. Not only are large quantities desired for the decoration of churches, in the observance of this festival, but many persons delight to make their own rooms especially beautiful, at this time, with flowers and floral devices, so that florists are frequently troubled to supply the demand. In anticipation of this, they make great preparations, two or three months previous, in the way of retarding the growth of some plants and forcing others; and it is well for all interested in the culture of flowering plants, even in their small household collections, to look forward to that season in the same way. The pleasure of any occupation or pursuit is much enhanced if a definite object, towards which all efforts shall tend, is kept in view; and, surely, this furnishes a good incentive for exertion, and presents opportunities for many interesting experiments in plant-culture.

Red and pink roses and the lily of the valley, as emblematic of Christ, whom Solomon designates as "the rose of Sharon and the lily of the valley," should be used freely in Easter decorations. Other blooming plants, in a high state of perfection, are needed; also vines—both trailing and climbing, as well as cut flowers and buds, and a good assortment of lycopodium and other greenery. Foliage plants, in some positions, have a fine effect, but must be used sparingly. The early spring bulbs—snow-drops, crocuses, jonquils, and the like, are very desirable.

Lilies, especially white lilies, are indispensable. Immense quantities of these are raised expressly for this occasion, and yet the supply seldom equals the demand. *Calla Ethiopica* is the favorite, and no wonder; for, though so common as to be in the collection of every person who cares the least for flowers, when the great ivory-white blossom is fully unfolded it is a splendid object, and if surrounded by its shining green leaves, it makes a magnificent ornament.

So, in the first place, the calla lilies must receive attention. If we gave them rest last summer, by February they will have obtained a strong, healthy set of leaves. During May, June, July and August, callas should be kept in a cool, shady place, without water; then the foliage will wither away and the bulb store up strength to put forth a rich growth for the winter. To secure flowers at Easter the plants should be kept at a moderate heat until February; at that time increase the temperature and give a fertilizing liquid twice a week. Callas need a great deal of water during their season of growth and bloom—the saucer of the pot should be always full. Wash the leaves once a week with a soft sponge wet in warm water. If, toward Easter, the flower-buds do not develop as rapidly as desired, give still more heat, and water more frequently. If buds are coming forward too fast, set the plant in the shade, give very little water, and lower the temperature.

The white lily of the garden, *Lilium candidum*, is very beautiful as a parlor plant, and is also desired at Easter for church decoration. After its summer blooming is over the leaves will dry up and fall off. The bulb should then be potted—August, or early September, is the time for this. It needs a soil one-half sand, one-half rich garden mould, lightly mixed. As with most bulbs, it must not be planted deep—the crown must be just at the surface of the soil. Keep them in the sun till a good growth is attained. Water regularly, but less than callas. In other respects proceed as with callas. The beautiful new lily, *L. longiflorum*, requires about the same treatment. Its large pearl-white flowers are as effective as callas for decorative purposes, but require more delicate handling. In order to bring the lily of the valley into bloom at Easter, the plants should be taken from the garden in October, set in good garden soil, and the pots kept in the cellar, or a dark cold place, till January; then take them to a warm room, give the fertilizer weekly, water

freely; in March, hasten their blooming by increased heat, but they need very little sun.

The bulbs of crocuses, tulips and snow-drops may be grown in sandy loam for Easter flowering. Plant them in the autumn, keep them in the dark and cold till the last of January; then bring them to the light, water twice a day, keep only moderately warm till the buds appear—give them greater heat then if you wish to hasten their opening. Hyacinths, and other bulbs, grown singly, in pots of sandy loam, can be grouped in baskets, or used with fine effect in flower-banks and similar arrangements. Common wicker basket-stands, for holding ladies' sewing materials—those about three feet high—are very graceful ornaments, filled with blooming bulbs or cut flowers—trailing vines drooping from the basket around the stand. Any light material, like shavings or straw, can form a bank, in which small pots can be placed, the substance that forms the bank being covered with green moss or evergreens. Cut flowers, individually, or in small bouquets, as well as pots of flowering bulbs, can be inserted among the moss of these flower-banks. An arrangement of this kind, if surmounted by a large moss-covered cross, bedecked with roses and valley-lilies, is an elegant design, suitable for the chancel.

The calla, though frequently used with smaller flowers, in making crosses, garlands, etc., and sometimes constitutes their entire material, is never so beautiful as when only accompanied by its own foliage. If three or more bulbs are suffered to remain in the same pot, at the time of blooming, they appear like an immense bouquet, which in grandeur, or stateliness, cannot be surpassed by any other plant or collection of plants. It is therefore more proper to use it for church decorations in this manner. The pot can be covered with evergreen, or moss; and if placed upon a pedestal or small stand, vines should entwine this support.

With the smaller lilies, *longiflorum* and *candidum*, ferns are the most beautiful foliage. These can be procured, in the autumn, from the woods and meadows; and if taken with a portion of their native soil about their roots, placed in boxes, kept in a dark, cold cellar and watered occasionally, if the soil gets dry, they will remain in a healthy state all winter. Should this be too much trouble, gather them in September, press them between papers, beneath weights, and then lay them in a dark, dry place till Easter. They will retain their verdure, but must be handled carefully, they are so liable to break.

Camellias, azaleas, roses, deutzias and other parlor plants are generally in bloom at Easter. If the smaller plants furnish sufficient cut flowers for bouquets, wreaths, etc., the larger ones need not be despoiled of their beauty; with plenty of verdure to envelop their pots, they are more desirable ornaments than any bouquet or wreath, either for church or home. The same may be said of pelargoniums and fuchsias. The foliage plants—dracænas, marantas, begonias—have a good effect when set in juxtaposition to flowering plants; but only very few of these should be used.

For the nicer greenery—ivies, smilax, madeira, and the smaller parlor vines, are always needed. The vivid green of smilax and madeira, should be our first choice. The wild evergreen—bear's foot and arbor vitæ varieties—carelessly braided, to form a long twine, is very pretty for interlacing and festooning. After the twines are braided, small bouquets, or individual flowers, should be sewed at short intervals upon it; this will make of it a floral garland. A white cross (of wood, covered with white linen or cambric), over which a slender vine of smilax is draped, arranged as if springing from a bed of ferns or flowers, with ferns for a back-ground, is a very appropriate chancel ornament. Vases for holding bouquets, for church decorations, should be of silver, or colorless glass. Small vase-like stands can be improvised for large bouquets, whose stems—being wrapped in wet moss or cotton—need no water, by cutting small forked branches of hemlock or arbor vitæ to make a steady support for those stems; and these rustic vases (as they seem) are very pretty.

A beautiful Easter monogram is thus made: Take a piece of book-board, two feet and three

inches long, one foot and seven inches wide, and cover it with white linen or cambric. Draw in the centre of this the letters I. H. S. Cover these letters with half-opened red or pink roses and small green leaves; and arrange lilies of the valley, amid their own foliage, as a fringe or border. It is a fine illustration of the verse—"I am the Rose of Sharon and the Lily of the Valley," to which allusion has been made in the first part of this paper, and should be seen in every church on Easter day.

Devices in Autumn Leaves.

AN exquisite transparency may be made by arranging pressed ferns, grasses, and autumn leaves on a pane of window glass, laying another pane of the same size over it and binding the edge with ribbon, leaving the group imprisoned between. Use gum tragacanth in putting on the binding. It is well to secure a narrow strip of paper under the ribbon. The binding should be gummed all around the edge of the first pane, and dried before the leaves, ferns, etc., are arranged; then it can be neatly folded over the second pane without difficulty.

To form the loop for hanging the transparency, paste a binding of galloon along the edge, leaving a two-inch loop free in the center, afterward to be pulled through a little slip in the final binding. These transparencies may either be hung before a window, or, if preferred, secured against a pane in the sash.

In halls a beautiful effect is produced in placing them against the side-lights of the hall door. Where the side-lights are each of only a single pane, it is well worth while to place a single transparency against each, filling up the entire space, thus affording ample scope for a free arrangement of ferns, grasses and leaves, while the effect of the light passing through the rich autumnal colors is very fine. Leaves so arranged will preserve their beauty the entire winter.

An exceedingly pretty standing for a lamp can be formed of eight oblong transparencies (made of glass and autumn leaves, as described) tacked together with strong sewing silk so as to form an eight-sided, hollow column. To hide the lamp candlestick, the screen should be lined throughout with oiled tissue paper, either white or of a delicate rose color.

Bulbs for the Window.—An experienced horticulturist writes in the *New York Tribune* as follows: I have bulbs in bloom all winter long. Not the same plants, of course, but by keeping up a succession, and replacing those whose duty has ended, I have a continuous exhibition that ends only with the advent of snowdrops in early spring. I adopt as a rule in life never to purchase the cheap auction bulbs; they may be good, or they may not, with odds very greatly in favor of the latter. For hyacinths, tulips, and narcissus, I choose six-inch pots; place some broken pieces of charcoal or pebbles in the bottom for drainage, cover these with a little moss, and fill in with rich rotted compost and sand. I do not like to cover the bulb too deeply, in fact the neck should just show itself at the surface of the soil. Sink the pots in the ground until freezing weather sets in, then remove them to the cellar, where it will be sufficiently cool to prevent them from starting prematurely. A few of these at a time may be placed in a warm, sunny window, and as soon as the flower buds commence to expand, place them on a rustic stand in the bay window of your sitting-room. To keep up the succession, when one is removed from the forcing window, replace it from the stock of dormant plants in the cellar. This is a leaf from the book of my own experience, and friends wonder why my stand is always covered with bloom.

It is stated that more bouquets (not buttonhole) are made up in a single month in the city of New York than in the course of a whole year in the city of London. This is, perhaps, a trifling exaggeration, but Mr. Dickens said very much the same thing in writing of his American experience several years ago, so that it is evident that our love for flowers is sufficiently conspicuous to attract the attention of foreigners.

Editor's Portfolio.

Our Greeting.

Time-honored custom seems to require the editor of a journal, no matter what its field of labor, to hold a social, familiar chat with his readers at the commencement of a New Year.

This, under all circumstances, is an agreeable task, as it appears to bind their interests more closely; to work, as it were, in harmony for the public good, each with the other, to advance the cause that they advocate.

As our New Year's greeting, we wish to say a few words in respect to fruit-culture in this country, and in doing so, to give general impressions, rather than personal preferences.

We have every reason to believe, and we do not say it in an egotistical spirit, but because the truth is apparent to all, that America, to-day, with her varied climate and soils, is far ahead of any country in the world in this branch of industry. From the tropical fruits of the Gulf states and the Pacific coast, to the apples of the temperate zone, all are grown in the greatest profusion, and to perfection. It may be said that small credit is due to us for the result, for with such natural advantages as we possess, it could not well be otherwise.

To a certain extent we acknowledge this to be the case, but we also believe that very much is due to the perseverance and industry of our people, who, when once convinced of the value of a certain commodity, immediately direct their attention to the most feasible methods of producing it in sufficient quantities to make it remunerative, whilst affording it to purchasers at a reasonable price. Instances are everywhere around us to prove the truth of this reasoning. Examine the extensive peach orchards of Delaware and Maryland in the East, Michigan and Missouri in the West, and, of later years, Texas in the south, and then compare the extent of this business with the result but ten years ago, and we are at once startled at our rapid progress.

Peach orchardists, twenty years since, were really alarmed about this rapid increase in the crop of fruit, and many, through discouragement, actually allowed their orchards to go down. But, as is always the case, inventive genius came to their aid—canning establishments sprang up, as if by magic, and the orchardists soon found that they could not produce the fruit as rapidly as the demand required. Think of the fact that where to-day hundreds, if not thousands, of acres are covered with trees, our fathers had but small orchards, and our grandfathers only an occasional specimen in their gardens. These are truths which our brethren in Europe are scarcely able to realize. They comment on the spirit of the American nurserymen, as they read of the hundreds of thousands of trees offered for sale, while in their own establishments the stock may be only a few hundreds, grown with the greatest care and trained into shapes which fit them for their future life against a wall or under glass.

As regards the culture of the apple, our figures may not, perhaps, be quite so enormous, but yet they are something wonderful. The immense orchards of Ohio, Indiana, Illinois, and still further west, are increasing at a rate that a pomologist of old would have thought impossible. In fact, the supply has somewhat exceeded the demand, until a partial relief for the overburdened market had to be found in foreign lands. This is now no longer a doubtful experiment. Our annual exportation of apples is steadily on the increase, and producers, looking ahead, feel confident that this field of consumption cannot readily be overstocked. Pears, we are obliged to add, are, in the majority of instances, so very uncertain, that the area of territory where they can be profitably grown is not very extensive. Still, even this fruit is becoming more common every year, and were it not for the terrible blight, they would be as plenty, almost, as apples.

It will not do for disappointed culturists to say that the pear is a delusion, as the results from many an extensive plantation tells a different tale. The city of Boston alone, whose

markets are doubtless better supplied with this fruit than any in the world—and we make the assertion with due consideration—is an example of what can be done in this way, when the business is properly understood.

In the way of plums, apricots, and nectarines, we do not feel disposed to boast much of our success, and yet even these are not entire failures throughout the length and breadth of our land. The curculio has now become so universally prevalent, that to find a location where it does not destroy the entire crop, is a somewhat difficult task.

We have seen, in the markets of San Francisco and at Great Salt Lake, as abundant crops of all the above as the most avaricious owner could possibly desire. There are also localities in the older states where their successful culture is a fixed fact; but it requires knowledge and perseverance to secure a crop. The advent of a few improved varieties of the Chickasaw plum, with a skin so tough that the curculio passes on in disgust, seem to be the forerunners of an improved class, that we may enjoy with little extra care.

The tender-fleshed cherries appear to be less reliable than in former years—not so much on account of their inability to withstand the winters, but from some insiduous disease which has of late years caused the trees to blast and decline in early life. This malady does not affect the Morello class, however, and these, especially the Early Richmond, is being planted largely in many sections of the country. We do not mean to convey the idea that the sweet cherries, or in other words, the Hearts and Biggarreaus, and even including the Dukes to some extent, are, to-day, not paying a profitable investment on the outlay. For a visit to any of the large markets will tell a far different tale: but we do aver that the localities where they succeed are not at all numerous.

The magnitude of our small fruit trade affords a useful lesson to the young planter. He may see in its rise and development what may be done in country life, equally as well as by a merchant prince.

Such successes, in this line, as we might record, will compare favorably with those in other branches of industry incident to city life. And yet we have the best of reasons to believe that its height is far from being reached. Every year the business is gradually being extended; improved systems of culture are inaugurated, and valuable ideas are gained respecting the transportation and sale of the fruit. So carefully has the debit and credit sides of the account been calculated, that there need be very little concern on the part of the intelligent producer, who is practically acquainted with the business.

"Comparisons are odious," may be all very well in the usual acceptation of the term, but when we take into consideration the many discouraging elements opposed to fruit-culture in foreign countries, and especially in England, we sometimes think that we do not sufficiently appreciate the blessings of our varied, yet, on the whole, congenial climate for the production of fruit. When we contrast the ease with which we can produce a crop, with the necessary expense incurred by our brethren abroad, we find that our lots have been cast in pleasant places, grumble as we will, and do too often, at our losses. Speaking in a general sense, here our trees care for themselves, whilst abroad the inventive genius of a careful, highly-advanced horticultural taste has to depend upon art to assist in the work.

Labor, systematic and untiring, is the only sure road to success, and this our English friends follow with a persistency that challenges our admiration.

Years of patient work is bestowed upon the training, pruning, and after protection of their trees, with a perseverance that knows not failure.

Thirtieth Volume of the Horticulturist.

This is our THREE HUNDRED AND FORTY-THIRD NUMBER. Let your thoughts take a full and impressive glance at the long past, and realize how finely thirty years of time have made the history of this your esteemed journal. It is an important event in the history of any enterprise—one that might be appropriately expatiated upon, and draw out the expression of cordial good feeling and friendship.

We wonder how many there are left of all who took THE HORTICULTURIST in its first year. Of all its editors and publishers, only its first editor and first publisher are dead; all the rest live; but how widely separated, rarely meeting, rarely corresponding. Yet can not this year see them again in reunion of sentiment and fellowship on so beautiful an occasion. Can not our best writers and most eminent pomologists send some contributions to its pages to let the world behold how well their sympathies and spirit still survive the lapse of time, and how strong their love of horticulture has grown. Let us ornament the pages of our journal, this year, with our *best thoughts;* be the effort great or costly, let this, thirtieth, volume be the brightest, ablest, best of all its life.

Villa of a German Prince.

The illustration in frontispiece is a sketch of princely life in Germany. Elegant grounds, architectural ornament, lawns, gardens, trees, shrubs, vines, and an air of costly decoration, make a model of beauty fit for any American merchant prince to follow.

Table of Contents.

Our monthly list of contents has become so large and varied, that we find it necessary to restore the old table, or index, on page two of the cover; and we expect to continue it hereafter regularly.

Horticulture at the International Exhibition of 1876.

We notice, in a recent number of a cotemporary, an illustration of a proposed Horticultural Hall, which we presume is to be used for exhibition of plants and flowers, and also as a conservatory and winter garden; it looks pretty on paper, and as no details are given, we have nothing to guide us in judging how far it is adapted to the intended purpose. As a modified form of a portion of the English Crystal Palace exhibition building of 1851, there is nothing original in the design, and if allowance is made for the difference of climate, and also for the different purposes the building is intended to be employed for, it may be a success; but we may mention that during several successive days, in the month of July, we noticed the thermometer at from eighty-two to eighty-five degrees, the entire day, in the building of 1851; we can judge what the temperature of the same construction would be with the July temperature of this climate; we can only say none of our plants would be exposed in such a place.

We have yet to see the first horticultural building which was satisfactory for growing or exhibiting plants; if designed by an engineer or architect, any one need only go to the New York Central Park and look down into the pit in which it is proposed to bury the people's money, in a two-story winter garden; can any one imagine a more absurd idea, with all the fine positions to be found in the Park? The above absurdity is so plain that it was only necessary to refer to it as an illustration; so we presume that the present building, being under the supervision of the National Horticultural Society, will be nearer perfection.

By the way, who are the members of this society? It is a strange fact, but we never heard of the society, to say nothing of the members; we certainly heard, about a year ago, of a so-called society, with a Mr. Delmar as secretary, with a flaming prospectus for a grand show, which dwindled down from large prizes to small, and then disappeared altogether, after some rather awkward exposures of Delmar's antecedents in the New York newspapers. We keep ourselves tolerably well posted in all legitimate horticultural proceedings, in both this country and Europe, but the National Horticultural Society has kept its proceedings so quiet that we never had a hint of its existence. The society should be the best judges if such privacy is likely to promote horticulture generally, or to give the public confidence in their proceedings. No doubt the horticultural public would also like to be informed under what bushel Mr. H. J. Schwarzmann has hid his light? and where even a ten-foot amateur greenhouse or propagating pit, of his designing and construction, is to be seen. There is no doubt these undertakings do occasionally develop unknown and modest worth, but in this country it more frequently finds, or rather makes, sinecures for

paying empty-headed politicians to feed at the public crib. We can form no idea how far the proposed Victoria house is adapted to the intended purpose, the ground plans only being given, but we know all those in Europe may be counted on the fingers of one hand; and presume a committee will be appointed to enjoy a trip to Europe, at the public expense, to obtain a few ideas on the subject.

We presume Mr. Wm. Saunders, of Washington, will be consulted on the Orchard House department, and if allowed to manage himself, we may safely leave it in his hands, if the houses are not spoiled by ignorant construction.

"Occidentalis" once More.

Mr. EDITOR:—Looking over the table of contents of our beautiful HORTICULTURIST for December, I find that the signature of "Occidentalis" does not occur for the year 1874. Yet I see that my name still stands as one of your contributors. You are aware, if the reader has not been, of the cause of my long-continued silence—that a journal of my own had claimed my attention and time.

Still, in glancing over, I see the well-known and honored names and initials that have graced its pages for many a year, and made our favorite magazine what it is—the first horticultural journal in America! There are Barry, and Thomas, and Downing, and Fuller, and Hoopes, and Al Fresco, and Annie G. Hale; and coming west, are Willey, and Edwards, and McWhorter, and Parker Earle, and the venerable Foster—not to mention many others whose pens have enriched its pages from time to time, since—*three hundred and forty-two months ago!* Surely it ought to be a favorite with everybody.

And then its clear white paper and beautiful typography—its handsome title page and green cover, and its exquisite illustrations, set THE HORTICULTURIST, in its general make-up, I think, a little ahead of all other horticultural journals, and this is not depreciating them either.

And, to my eye, there is always something to admire in the style of its advertisements. I love to run them over, as each monthly number appears, not only to learn what your advertisers have to offer their customers and the public, but to admire the beautiful type and handsome display in which your printer presents them to the reader's inspection. It is altogether right and proper that the beautiful productions of Flora and Pomona should be set before the public in the most tempting style of the typographic art. The flavor of a favorite pear would be wofully spoiled, and the dress of Madame Primrose very much marred by being presented on dull, brown paper, with bad ink and battered type.

Success to the HORTICULTURIST for 1875, and many more years to come! is the New Year's greeting of OCCIDENTALIS.

Banks of the Mississippi, Jan. 1, 1875.

A Chat About Lilacs.

One beautiful day last spring, while visiting the nurseries of Ellwanger & Barry, Rochester, N. Y., our attention was directed to a large clump of shrubs on the eastern side of the lawn, among which flowered some tall and strikingly beautiful tufts of lilacs. The subject of encouraging their culture came upon us with such force, that we took note of some of the best varieties, for special recommendation. Some of the heads (really floral pyramids in their size) were fully two feet long, and the display of all colors, from white to purple, and various mixtures between, was most delightful.

Chinese (*sinensis alba*), a fine vigorous variety, with flowers of white, with a purple shade.

Chionanthus-leaved (*josekea*), a very distinct species, with dark, shining leaves, and purple flowers.

Coerulea superba, a new seedling, originated by Ellwanger & Barry; flowers light purple, in bud, but when fully open a clear blue, truss very large, the finest of its color in cultivation.

Emods (*Emodi*), delicate purplish lilac, very large and fine, free bloomer.

Persian purple, foliage very small, but flowers bright purple.

Persian white, a variety of the purple,

with delicate white flowers, shaded with crimson.

Rothomagensis rubra, a really wonderful variety, trusses two feet long, a variety of the Chinese, reddish color.

Virginalis, flowers pure white, but shrubs very luxuriant.

We believe this subject of lilacs is yet to receive increased popularity. Though an old shrub, yet it is capable of acquiring new interest with each succeeding year. The new seedlings of Messrs. Ellwanger & Barry, of which we believe there are three especially fine—(*coerulea superba*, Glory of Mt. Hope, and *Sanguinea*), are really among the prettiest we have ever beheld.

In the borders which line the wide path, near the flower garden, are planted some specimen trees, which are so peculiar and beautiful, we wish every lover of rural ornament could look at them. One of them,

The *populus grandidentata pendula*, possesses a very graceful weeping habit. The leaves are deeply cut (or dented), the tree is a very strong grower, and the branches droop to the ground in a single season's growth.

Their lawn contains, among other treasures, very fine specimens of the *Oak-leaved Mountain Ash*, *Weeping Larch*, *Cut-leaved Beech*, *Purple Beech*, *Judas Tree*, and some very vigorous Thorns. At another time we hope to give a more detailed description of the objects of interest in other parts of this nursery.

Pear Culture in Japan.

"Occasionally," says Mr. T. Hogg, who is a thorough traveler in Japan, "as you pass along, you see orchards of trained pear trees, of the kinds peculiar to the country. The trees are planted, as nearly as I could judge, from twelve to fifteen feet apart. After attaining the proper height, the tree is allowed to form branches; and these are trained to rough frame-work of the same height, perfectly level, and extending over the whole area of the orchard. What object the cultivator has in training them in so careful a manner, I have not as yet ascertained; but why may it not have its advantages in enabling him to secure his crops in the highest possible condition. Every fruit is thus brought into view, and within reach of the gatherer, who, where trees are left to grow in their natural form, too often runs the risk, in order to secure some tempting prize, displaying its beauties on some inaccessible branch, of injuring the tree—or worse, possibly himself.

An International Exhibition of Fruit.

A general Pomological Congress, for all Europe, is announced to take place in Amsterdam, in 1875.

The commission of general management is mainly consisted of the most eminent of Dutch horticulturists. It is intended to devote special attention to the nomenclature of fruit-bearing trees and shrubs.

Transactions Michigan State Pomological Society.

P. Barry says of them, that he has not seen so valuable a publication, especially for the fruit growers, in some time. We are unable to express any judgment of the volume, as we have received none. We have not made any notices of the Illinois State Horticultural Society, because its respective President and Secretary persistently omit sending any to this office. We have received none for three years. Other societies, who receive no notices, will understand, we give favors when we receive them. If they forget us we can not be expected to keep their name and memory alive.

Arbor Day in Nebraska.

The project of tree-planting in Nebraska, and the idea of devoting one day in the year, exclusively known as Arbor Day, for the entire population to indulge in planting, originated with J. Sterling Morton, of Nebraska city. The first Arbor Day was held in the spring of 1871, when 2,000,000 trees were planted. In 1872 and 1873, "Arbor Day" was not celebrated, but it was recommended to the farmers to choose for themselves a day in April, and set it apart for tree-planting. This year, however, the State Board of Agriculture has determined to go back to the original plan. It has been resolved that "Arbor Day," shall be the second Wednesday in

April; and the State Legislature is to be asked to make the day a legal holiday. Each owner of land is recommended to plant at least one tree; and the State Board will award a premium to the person who plants the largest number. It is now the custom of the Board to give a premium to the land owner who has planted the most trees on any given day in April; and, at a recent meeting of the Board the prize was awarded to a farmer who set out 27,800 trees on the 28th April, 1873.

History of the Gravenstein Apple in America.

It is interesting to take note of some of the little incidents which first bring a good and worthy fruit into public notice. The Gravenstein apple is considered by the Newburyport (Mass.) people, the best in the world, and the editor of one of their local journals happening to meet, one day, the man who first set the grafts of this variety in America, sets down and repeats the story of its curious introduction:

Mr. Gorham Parsons, of the Fatherland Farm, Byfield, received from Europe a package of the grafts from the seedling tree. They were left at his counting-room in Boston, and he sent them to his country-place in Brighton, but his overseer, having no spare stock for them, sent them to Byfield. Our informant, Mr. H. D. Rogers, was grafting over the old trees at Byfield when the grafts arrived, but the foreman of the place, seeing that they were a little shriveled, owing to their long voyage, and that they were rather small specimens of grafts at best, refused to have them set, declaring that he wouldn't pay for the work. Mr. Rogers, nothing daunted, carried the poor grafts to his father, a somewhat celebrated fruit raiser, and proposed to set them in his trees. But Rogers, Senior, didn't believe in new-fangled apples in general, nor in these withered grafts in particular, and he would have none of them. As a last resort, Rogers carried the cions to James Peabody, who favored everything new and fancy, and who gave him permission to set them, with the understanding that they would go halves on the profits.

The third year the trees came into bearing, and Mr. Peabody carried a plate of the apples to the cattle show, where they attracted much attention, though the committee could not name them. They were cut up into minute pieces and distributed among the connoisseurs, all of whom pronounced it the champion apple. The next year Mr. Peabody carried a plate to the fair of the Massachusetts Society, where he met Marshall P. Wilder, the President, who had just arrived from Europe with a basket of apples, a bunch of the grafts, and the name, which has always been spelled wrong, Graff Stein—Count Stone—being the name of the proprietor of the estate on which the apple originated. All the grafts in this country came from Mr. Peabody's tree, which took pity on the poor, imported cions, after they had been refused everywhere else.

Complimentary.

A recent letter, received from W. Robinson, editor *The Garden*, London, expresses great interest in THE HORTICULTURIST. He says: "We hope you get our paper regularly, and thank you for sending your journal, which *has so much increased in interest* of late.

Pennsylvania Fruit Growers' Society.

The annual meeting of this society will be held in York, Pa., on Wednesday, January 20, 1875. Undoubtedly there will be a fine and practical discussion on fruits and gardening.

Correction.

Paragraph complimentary to Proceedings of the American Pomological Society, in a recent issue, attributed to *London Gardener*, should have been to *The Garden*, London.

Mr. J. J. H. Gregory of Marblehead, Mass., has his annual advertisement in our columns. He was the original introducer of some of the best vegetables now found on every table. He comes this season with a new squash, and a number of tempting specialties, some of which are finely illustrated from engravings taken from photographs. The fact that so many of his varieties of seed are of his own growing, is a golden fact for farmers and gardeners.

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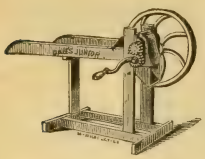
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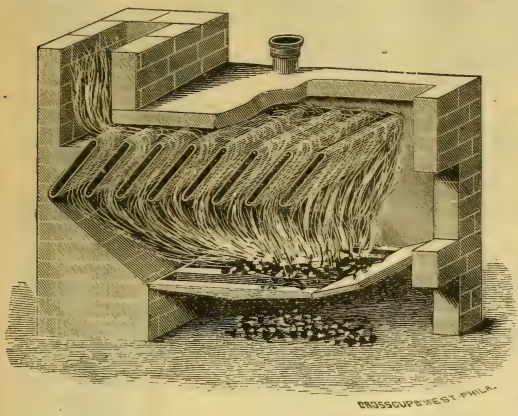
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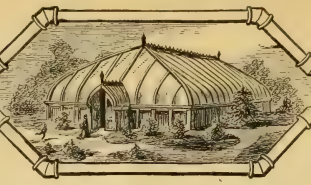
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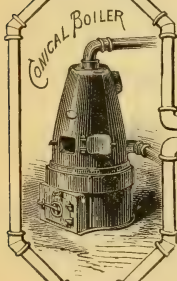
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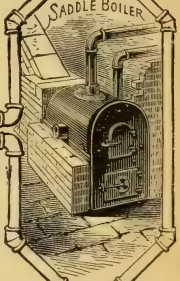
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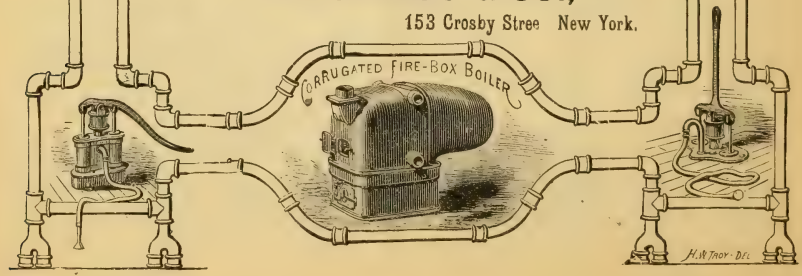
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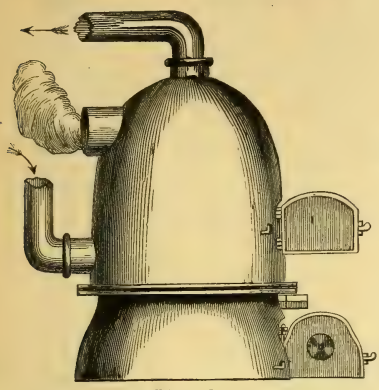


Fig. 1

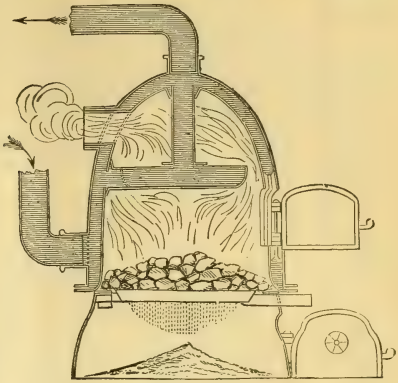


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SPECIAL CONTRIBUTORS TO EDITORIAL DEPARTMENTS:

JOSIAH HOOPES, ANDREW S. FULLER, JAMES TAPLIN.

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The Greenhouse.

Greenhouse for February.

WE have now abundance of flowers, both for cutting and for keeping the greenhouse gay, and also for a few pot plants to decorate the rooms. But with the dry heat of rooms, combined with the dust collecting on the foliage and flowers, it is not desirable to remove choice plants from the more natural heat of the greenhouse to the unavoidable dryness of the living rooms; and it will be found in practice that many plants will, with careful attention, grow and flower fairly well if kept altogether in a room, which, if removed from a greenhouse, even when in full flower, will at once begin to fade, and no amount of care and attention will recover its beauty. Among the most satisfactory room plants for flowering at this season are Cyclamens, Double Chinese Primrose, Begonias and Epiphyllums. Nice little grafted plants of the last are charming, and so are baskets filled with these plants. But it must be remembered that some of these flower naturally quite early, commencing in a warm greenhouse in October, while other varieties do not flower until this season; but some of the early bloomers will often give a few more flowers during the spring. Bulbs are also very useful for rooms; a few nice pots of tulips are excellent for this purpose. The same may be said of hyacinths. Narcissus are too sweet-scented to agree with many people; but a plant of this in flower, placed near the kitchen, will neutralize many of the unavoidable scents connected with the culinary department.

Camellias will now be in full beauty, and if the plants are planted in the open border of the greenhouse, the flowers will be much larger and last longer than when grown in pots. Attention will be required that the plants do not become very dry. This will reduce the time of flowering, and the young growth will start weak, to the injury of next year's flowering. Prevent water dripping on the flowers; it spots them, and prematurely spoils their beauty.

Azaleas.—Those plants which have received a little extra heat for a few years in

succession, will flower naturally earlier than plants which have not been forced; in fact, after this time will usually flower without any extra heat, but should have a nice, brisk, moist heat after blooming, to induce an early growth. Such plants are best not overpotted, but during the growing season assisted with some clear, weak manure water. Keep the plants required for late flowering as cool as possible. There are many splendid new varieties of these showy plants, which have been raised in Europe recently. We will give a descriptive list of the best in a future article.

Chinese Primrose and Cyclamens will now be in full beauty, and will require careful watering, more especially if exposed to the drying influences of a living room. In this case they usually require much more water than if growing in the greenhouse.

Cinerarias will now be in flower, and must have abundance of water and a moist part of the house, or the plants will soon be covered with insects. For this reason the Cineraria is a very poor room plant.

Forcing Plants.—Keep up a succession of Spiræa, Deutzia bulbs, Lily of the Valley, and any other plants which have been prepared for that purpose, to succeed those already in flower. A few bulbs of Gladiolus, potted and grown on in the greenhouse, come in very useful in the spring, when flowers are becoming scarce indoors, and before the outside things are in flower. The fine spikes of these plants make a grand show, standing among other plants, and the flowers last longer than when the hot weather sets in and the plant is naturally in flower in the open ground.

Yuccas and Agaves will require to be watered more frequently than during the last three or four months; but these plants at all times suffer more from too much wet than from being dry. The same may be said about Sempervivums and Echeverias. Look to the stock of these two last. Now is a good time to increase it, if short, these being among the best plants grown for carpet bedding, and also for temporary edgings to beds and borders.

Palms will require careful watering. At this season, growth is not very active, but many of the species make such a quantity of roots that they look as if all the soil had been consumed. In their state of nature the roots descend, and also spread for a great distance in search of moisture, and also to withstand the tornadoes of the tropics; but under cultivation, with the roots confined to the limited space of a pot or tub, if watering is neglected, the plants will soon suffer very much. Now is a good time to repot any palms which may require a shift. Most of these plants require a good loam to grow them well; but when small, the addition of some peat and sand is of advantage. But in all cases see that the pots or tubs are well drained, to give a free passage for the large quantity of water required. We often use pots made extra deep, as compared with their width, for in growing, many species lift themselves above the level of the ordinary make of flower pots.

Ixoras and other hard-wooded stove plants will require potting at this season, in some cases perhaps carefully. Remove any sour soil without disturbing the young roots, and pot in the same size pot as before, and in others give larger pots. In all cases for Ixoras use good rough peat with plenty of sharp sand. See that the plants are free from dirt and insects. These plants are much benefited by a gentle bottom heat and a good, strong top heat, with plenty of moisture while growing,

Marantas.—Divide and repot a few of these, but the principal stock of them can remain until later in the season. These plants require a good, strong heat to start them, and shade from sun.

Caladiums.—A portion of the stock should be shaken out of the old soil, and potted in pots just large enough to contain the bulbs. They will be less likely to get too wet before starting to grow. The plants should be placed in a good, brisk heat, and receive but little water until they commence to grow; and before they have made much foliage, the plants will require a shift into a larger pot. If desirable, place them into the full size it is intended to grow them in. Those intended for autumn decoration need not be disturbed for

several weeks; but notice that they do not get entirely dried out by standing close to flues or pipes, for this is a frequent cause of decay.

Gloxinias and Achimenes.—A batch of these must be started to grow. The gloxineas are best beginning to grow before repotting into smaller pots, but the achimenes may be shaken out, and the scaly bulbs laid thick in shallow pans to start them to grow in a warm house, giving but little water to either until they commence to grow.

Poinsettias will now have finished flowering, and the wood will be getting well ripened. The plants can be stored for the next two months in a hot, dry part of the shed; this will make room in the greenhouse for other plants. We find the new variety sent out by Veitch, of London, and called Pulcherimum major, is an acquisition. It flowers a fortnight before the old species, is a different color in the bracts, it being a decided shade of rose over the scarlet; and although it does not appear to form any of those extra large bracts usually seen in well-grown specimens of the old sort, yet the bracts are more in number, and more equal in size, so that it is likely to last in beauty for a long time.

Euphorbia jacquiniæflora can be kept dry, like the Poinsettia; but being of a more slender growth, will not stand such a long drying.

Eucharis.—If these plants are out of flower, now is a good time to surface large plants which do not require potting, or to give any requiring it a shift, in either case using good, rough, open soil, with plenty of drainage; for although it is nearly an aquatic in its love of water, no plant suffers more from a sour, undrained soil. This is one of the grandest plants for Christmas decoration. Our plants had hundreds of flowers open at that time, and will continue in full beauty during the month of January, by which time there will be another crop of flowers coming up. In fact, we may say that the plants are in flower all the year.

Ferns.—Now is a good time to divide and repot many of these plants; but it is not wise to pull any of these plants to pieces when entirely at rest, for they often die without starting. But many, such as adiantums, will be starting young leaves, and will not suffer as much as when disturbed later in the season, with growth more advanced. See that scale does not become established on the young growth. It is often better to cast away some of the old fronds, if dirty, rather than be at the trouble of cleaning; for with every care it is difficult to clean these plants without damage to the fronds. The as yet rather rare Adiantum Peruvianum is a valuable addition to this beautiful class of plants; and Davallia Moreana is another grand addition to those requiring large exhibition plants, besides being a splendid plant for a general collection. Davallia Tyermanni is also a valuable plant, and being a small grower, will be valuable to amateurs with small houses.

Orchids will be very gay this month. Many of the species which made the house gay at Christmas will still be in flower, such as Lælia anceps and superbius, Cattelya trianæ in many varieties. Among its other desirable qualities, this species is very sweet-scented. If kept cool, there will still be flowers on Cypripedium and insigne, and venutrum will be also in flower; also Roezli. But if any one has a few strong plants of this species, it will be in flower all the year. We had one strong plant of this which flowered without intermission for twelve months. This species is, however, scarce, and rather high-priced. Dendrobium nobile will be commencing to flower. This is not only one of the most beautiful orchids grown, but it is also one of the easiest to manage, although it would be rather difficult to give up some of the other fine things, we consider. If there was only one to be grown, we should select this one. Many people grow this species in a basket, but we consider it looks more natural growing in a pot or pan, for it is naturally of upright growth; but the Macrophyllum and Pierardii varieties, as well as many others which have pendulous growth, look far better in baskets. A correspondent has some difficulty with his Lælia anceps, the flower stem dwindling away when half developed. Without seeing the

plant, we can only suppose the roots have perished from some cause. All the Lælias suffer very quickly from too much water, or sour soil or moss in contact with the roots, for which reason they are best grown on blocks, with a small portion of nice, sweet spagnum moss, or in baskets with scarcely anything but drainage. In fact, some of the best plants we have seen of Lælia anceps, were growing on rough lumps of wood, without even a bit of moss. We may mention that insects are specially fond of Lælia roots; and if there is a cockroach or snail in the house, it is sure to find and destroy the delicate young roots.

Phalænopsis in variety will now be in full beauty, especially Schillerania. This is essentially a winter bloomer, and one of the most lovely flowers grown, lasting in beauty a very long time. The beautiful marbled foliage is also handsome at all times. These plants are best grown on blocks, or in baskets filled with drainage and surfaced with some live moss. It is necessary to grow these plants at all times in a hot, moist atmosphere, they being without exception natives of the East India islands.

Cœlogyne cristata will now be in flower. This is a splendid plant for the amateur to grow, for it does best in a cool house, but requires abundance of water at all times. This is the principal reason many people do not get it to flower well in this country. Having heard or read that orchids generally require a season of rest, and to be kept dry, they apply the system to all, with success in some cases, but failure in this; for if the soil only gets moderately dry, the bulbs shrivel, and if this occurs, it is almost impossible to get them plump again. We used to grow them with great success on blocks when in England, but found the climate too dry here, and had to use pots and pans, of course taking care to use thorough drainage, for stagnant moisture is as bad as drought. Clean and surface or repot, as required, the general collection of orchids at this season, before the young roots make much progress; for these are very brittle, and easily injured.

Propagating and potting must be proceeded with as time and room can be found. Such things as perpetual carnations and chrysanthemums root freely now, and when established, can be kept just free from frost, and planted out when risk of sharp frost is past. Lobelias and Alternantheras are best rooted early, as the plants are very small when required for bedding out. Roses root readily at this season, but the plants can be purchased so cheap that it is scarcely worth the time and room required at this season. The propagation of verbenas from cuttings may be deferred until March. The plants get established very quickly, and take to the ground at once when planted out. It is not worth keeping the old stock plants. When the cuttings are taken off, they can be thrown away to make room. If seedlings are required, the seed should be sown at once. But the chances of getting any novelties or improvements, even from the best selected seed, are very slight; and seedlings are not satisfactory to form a bed, for it is not possible to arrange the colors, and the plants vary much in strength of growth, so that it is more than likely the weakest will be in the centre. Bouvardias can be propagated by cutting up the roots. This is an advantage, for the plants are subject to insects if grown near infested plants, so that it gives a chance for a clean start. The jasminoides varieties must be increased by cuttings; the roots of these seldom make plants. Prepare a nice batch of Abutilon Boule de Niege to plant out for summer flowering, and also for lifting in the fall to pot. For flowering all through the winter, a few plants of Lantana, or as it is sometimes called, Pattersonii, is also useful for that purpose. It is a fine contrast to the white variety.

Pot Culture of the Fig.

BY JOHN FISK ALLEN.

TAKE cuttings from well ripened, short-jointed wood. Old wood, or that of last year's growth, equally good. They will root readily in sandy soil or in leaf mould. When rooted, pot off in good compost of decayed

sods and leaf mould, with some sand or street sweepings from graveled roads.

The fig requires a rich soil, and must have it, or you will not have fine fruit. If the above compost cannot be had, as the best substitute take common soil from the field or garden, one part; old cow or stable manure, one part; decayed leaves, one part; thoroughly mix these, and add a little wood ashes. Sheep manure, if to be had, is always preferable to any other, but by most cultivators it cannot be obtained. When rooted and potted off, cut back the young growth to cause lateral branches. Three-inch pots will answer for the first year, larger the second, and so on, until twelve-inch pots are required. This size is all that will be wanted in the future. After a few years' fruiting, if the tree should flag from want of soil, take the plant out and cut back the roots; shake out all the soil, and repot in new compost. Bearing plants, when in fruit, should be watered often, and with liquid manure once a week. This should be made from old manure, one peck to thirty gallons of water, to steep one or two days before using. Peruvian guano may be used as a substitute, but not over one pound to thirty gallons of water; if stronger, it will endanger the life of the plant. When the plant is four years old and onwards, it must be pruned back every few weeks during the spring and early summer. When the new growth has reached five or six inches, or six or seven leaves, cut back to three or four leaves. This will cause the fruit to push from the new wood at each leaf. New wood shoots will also push. When these develop three leaves, cut them back to two leaves, and continue this cutting as often as the shoots push to this length. By autumn, the growth of new wood will cease. By this process I have for many years ripened full crops. This last season of 1874, trees of the black Azores and white Marseilles of different ages have matured thirty, forty and fifty figs each. They should rest in winter, starting them early in the spring, if in the greenhouse. If grown in the open air north of New York city, they should be housed in winter, as freezing the roots when in pots will kill them. The fig bears its fruit both on the old and new wood, and usually yields three or more crops. The first, pushing from last year's wood, often fails; the second crop, on the new wood, is usually the best. After the fruit has attained a certain size, it remains stationary some weeks; it is then maturing its seeds. After these weeks have passed, one drop of sweet or olive oil, put in the apex with a straw, will cause the figs to swell off and ripen, and improve the quality.

Salem, Mass.

Euphorbia jacquiniæflora. — During the past winter, few plants in our store have attracted so much attention as this. Three years ago I planted out a small pot specimen, and trained it along the back wall, along with the elegant Ficus stipulata. The plant took kindly to its position, and grew very rapidly, making much stronger shoots than it ever does when cramped in pots; indeed, so robust were its growths that I almost despaired of their ever flowering. It did bloom, however, the tips of its shoots being glowing masses of bright scarlet, its color being intensified by the fresh green ficus behind. I prune them back close every spring, and this year the whole back wall has been one mass of scarlet and green. Some of the strongest shoots had flowers at their tips for fifteen inches, forming the most charmingly natural of all floral wreaths, and these come in very handy for the drawing room vases; and the smallest were occasionally used by the ladies, as a relief from camellias and eucharies for their hair. The brightest arrangement I ever saw in a drawing room vase, consisted of two spikes of this plant, a spike of eucharies, bearing five open flowers and two pearly buds, this trio being further set off by just three fresh, well developed fronds of *Pteris tremula.* Nothing could be simpler or more striking than this, the whole being contained in an elegant trumpet-shaped vase.—*Cor. The Garden.*

Salvias.—When large conservatories and plant houses are required to be kept gay during the dull, dark months of the year, scarcely any subjects are more effective for mixing

with the permanent inmates of that structure than these brilliant and free-flowering plants. There is a great variety of sorts, but as so many of them are merely different shades of scarlet, I have selected a few kinds that will form a succession of bloom. I think I may with certainty select *S. splendens* as the best of all, as regards freedom of bloom and intensity of color. In these respects it is unexcelled by any plant with which I am acquainted, and from September to Christmas is its best season, although it may easily be had in bloom earlier, and prolonged later if wanted. I also find *S. Heerii* a very distinct and good sort to succeed *splendens*, as its crimson flowers with white throats are very pretty. *S. gesneræfolia* comes in well in spring, and several other varieties, but of course the winter bloomers are the most serviceable.—*The Garden.*

Libonia floribunda.—The following mode of culture was communicated by M. Bisson to the *Revue Horticole*, and is stated by him to be perfectly successful in preventing the plants from losing the leaves:

"I strike my cuttings in spring. When they are well rooted, I plant them out at distances of seven or eight inches in a well drained bed, composed of half saved and half spent hot-bed material, and keep them covered with a frame until all danger from frost is over. I admit air by degrees, finally removing the frame altogether, and leaving the plants in the open air until the end of September, when I transplant them again into a bed of the same material, and cover them with a frame, under which I leave them for a month or six weeks, when I remove them to their permanent quarters in the plant house, and find that they turn out equally well, whether I place them in a warm house or a temperate one. Plants a year old, treated in the same way, succeed quite as well. I cut these back, and prune them in before planting."

Ornamental Beets.—*Beta cicla* or *Brasiliensis*, with their different-colored leaf stalks, are very beautiful for surrounding beds of subtropical plants, or for borders in front of shrubs. The finest collection of ornamental beets which I have seen was in the zoological garden, *Regent's Park*. It comprised scarlet, red, purple, yellow, cream and white, as well as several possessing other shades of color. These, besides making a fine show in summer, are invaluable in winter, if taken up from the ground, potted and placed in a warm greenhouse. The new leaves which they push up are satiny and ribbon-like, some of them having two or three shades of color in one leaf stalk. If those which I saw in the gardens in question had been potted and placed indoors in a warm house, they would have had a charming effect.—*Garden.*

Plants for Table Decoration.—Have any ever thought what a delightfully graceful plant for this purpose is the *Dielytra spectabilis?* There is a white-flowered variety also, and either of them, put in ornamental pots and placed in the centre or at either end of the table, would be remarkably effective.

Spiræa japonica aureo variegata is also recommended by *The Garden* as one of the most decorative and graceful of table plants. "Its fine, glossy, ornamental foliage is traced throughout with bright, gold-colored veins, while its snowy white, erect, feathery flowers are produced in great abundance. It will thrive in almost any soil, but in dry seasons it should be abundantly supplied with water."

The Double-flowered Nestaria sent from Japan to Mr. James Hogg, of New York, is considered quite an acquisition, and plants are to be offered for sale as soon as the plant can be propagated.

Dianthus ramosus is a pretty and distinct species of pink, which forms a dense tuft eight inches high, with abundance of purplish-rose colored flowers.

A Prolific Bloomer.—At Messrs. Veitchs' establishment, London, there was seen, this fall, the rare and beautiful *Oncidium Rogersii*, with over one hundred flowers in perfection.

Dracænas.—The best sorts adapted to table decorations are *D. Cooperii, rubra, terminalis, gracilis.*

The Pleasure Ground.

Ornamental Trees, Magnolias, Etc.

Special Report to Western New York Horticultural Society, January 6, 1875.

BY G. H. ELLWANGER, ESQ.

THERE having been less novelties introduced than usual in the way of hardy ornamental trees and shrubs during the past year, it has occurred to us that an enumeration of the various hardy magnolias might prove acceptable in place of our usual report of newly introduced ornamental trees and shrubs.

Among the many materials offered to the landscape gardener for the adornment of the lawn, the park and pleasure ground, the magnolia, in its numerous species and varieties, claims his especial attention as one of the most desirable in the entire list of ornamental trees and shrubs. While there are many other arboreal productions, each possessing its own valuable characteristics, and which are indispensable in every well arranged place, there is no tree or shrub, in our opinion, whether deciduous or evergreen, that can compare with the magnolia in effectiveness, or take its place in all well laid out public or private grounds. Its superior stateliness of form and splendor of growth, the size and richness of its foliage, and its lavish yield of fragrant flowers, all tend to place it in the foremost rank among hardy ornamental trees and shrubs.

Its proper place is on the lawn, where it shows to fine advantage in contrast with the green; or it may be planted effectively on the border or lawns, with an evergreen in the background to heighten the contrast. Planted in groups, it yields to no rival, and its effect in the early spring is grand beyond description, illuminating the landscape and loading the atmosphere with its rich perfume.

The magnolias are all either indigenous to America or Asia, and occupy very similar parallels of latitude. The Chinese varieties possess the peculiarity of coming into bloom before the appearance of the leaves. On their own roots they are all of slow growth, growing at best into low, bushy trees, and, on that account, are admirably adapted to be planted with the larger varieties of shrubs, or to claim a place in small grounds where there is not room for anything larger. Where the space is abundant, however, to give room for a finely developed tree, they should be budded on the *Magnolia acuminata*, which adds materially to their vigor, hardiness, shapeliness and size. The French inarch them on the *purpurea*, a dwarf Chinese variety of less vigor than the others, but more easy of propagation. The *acuminata*, however, is far preferable with us.

The magnolia, very erroneously, has long been considered by many a tender tree. This idea has obtained prevalence, doubtless, from its extreme shyness to being transplanted. No roots, to my knowledge, are so sensitive to the exposure of the wind, or sun, as are those of the magnolia; hence the poor success in transplanting them.

It often occurs that after being moved they survive for a few months, maintaining a sickly existence, and having made no roots, perish in the winter, thereby, unfortunately, strengthening the impression that they are not a hardy tree.

To ensure success in their transplanting they should be moved in the spring—never in the fall, and the Chinese varieties at that period when they are coming into bloom, and, consequently, before the leaves have made their appearance. Great care should be exercised in their removal, the fibrous roots being preserved as nearly as possible and carefully guarded from any exposure to wind or sun. For this purpose a cloudy or rainy day is preferable. While almost any good soil is sufficient to ensure their growth, they succeed best in a soil which is warm, rich and dry.

The varieties embraced in the annexed list, with but one or two exceptions, are all of sufficient hardiness to endure the rigors of even a New England winter. On our own grounds we have a number of specimens over 30 years old, as hardy and thrifty as our native oaks.

In enumerating varieties, I shall call attention only to those which have for years come under my observation on our own grounds.

American Varieties.—The *Magnolia acuminata*, or Cucumber tree, as it is often called from the resemblance of the young cones to a cucumber, forms in its well developed state one of our noblest and most finely proportioned trees, often growing in our forests to a height of 60 to 70 feet, and attaining a diameter of several feet. The leaves are large on young trees, and the flowers, which vary from five to six inches in diameter, are yellowish white, tinted with bluish purple. In autumn the cones open, displaying the coral-colored, polished seeds, and adding greatly to the charm of the tree. The Acuminata, as previously mentioned, is invaluable as a stock upon which to work the Chinese and other slow growing varieties.

The *Magnolia acuminata variegata* is a variety of the preceding, with the foliage and young wood striped with yellow. It is also of superior growth, and is very distinct and fine. It originated on our grounds about fifteen years since.

The *Magnolia tripetela*, one of our best known varieties, is of medium size with immense leaves, growing in clusters, and large, white flowers five to seven inches in diameter. This variety is seldom seen with a single stem. Its natural habit is to throw offsets from the base of the trunk, which, when allowed to grow, add to its attractiveness. Its period of flowering is June, and while not nearly as fragrant as the Chinese varieties, its immense leaves at the end of the branches, and showy cones of seeds render it a highly ornamental tree.

The *Magnolia Thompsoniana* is one of the most unique and attractive of its species. Any one who has passed a tree in bloom, or even possessed one of its wonderfully fragrant flowers becomes enamored of it at once, The *Thompsoniana* is a hybrid of the *glauca* and *tripetala*. It commences to flower about the middle of June, continuing more or less during the summer. It is the rarest as well as the most fragrant of all the magnolias. It is, however, difficult of propagation. It continues growing until the latter part of September. The young wood does not always ripen well on young plants, and should be protected with straw or mats during the winter and planted where they will be sheltered from the west and northwesterly winds.

The *Magnolia glauca*, or swamp laurel, is of low growth, with extremely fragrant flowers and laurel-like leaves. As its name indicates, it is a favorite of moist soils, never succeeding on limestone soil, unless budded on the *Acuminata*. Owing to its bushy growth and handsome, fragrant blossoms, it is extremely valuable as an ornamental shrub.

The *Magnolia glauca longifolia* is a variety of and similar to the foregoing, but differing from it in being more vigorous, and in its finer foliage.

The *Magnolia macrophylla*, were it not for its sensitiveness to the cold, would prove one of our most invaluable ornamental trees. It is a native of North Carolina, where it grows very luxuriantly, the flowers and foliage both growing to extreme size. The *macrophylla* is among the rarest of the native magnolias. It is not hardy as far north as New York in exposed situations. If planted, however, with judgment, in warm soil and a protected situation, it often does well. At any rate it is worthy of a careful trial. We have had it flowering on our grounds for several years.

Chinese Varieties and their hybrids.—*Magnolia conspicua* (Chandelier or Yulan).—In many respects this is the finest of the Chinese varieties. We have always held it in the greatest esteem, owing to its being the earliest flowering of all the magnolias; as also, from the matchless whiteness of its flowers. If placed in contrast with evergreens or the *Forsythia viridissima*, which begins blooming at nearly the same time, its effect is almost startling. It has aptly been christened "chandelier," for there is nothing to compare with it in lighting up the landscape of early spring. Its flowers are large, white and extremely numerous, often numbering thousands on a single tree.

Magnolia Soulangeana.—This fine variety

is a hybrid of the *conspicua* and the *purpurea*. While in general habit it closely resembles the former, it lacks its wonderful effectiveness, owing to the flower being tinged with purple. Coming in blossom, however, a few days later, the flowers are not as liable to injury from late spring frosts in the Northern States. Perhaps the *Soulangeana* has been more disseminated in this country than any other variety.

Magnolia Norbertiana.—It is also a hybrid between the *conspicua* and the *purpurea*. It differs from the varieties previously mentioned, in its flowers being much darker, and, therefore, we regard it as superior to the *Soulangeana*. This variety is still scarce.

Magnolia Lenne.—The *Lenne* seems to be closely related to the *Norbertiana*, and is doubtless of similar parentage. In color it is darker, and in size somewhat larger. It is a decided acquisition.

Magnolia speciosa.—In habit of growth this variety resembles the *Soulangeana*. The flowers are smaller and of a lighter color. They also come into bloom a few days later and continue some days longer than any of the other sorts. It is a remarkably profuse bloomer. For florists it is the best for cut flowers.

Magnolia obovata (Chinese purple).—The *obovata* is a charming dwarf variety, hardly ever seen over five or six feet high. It has showy purple flowers, and blooms in the latter part of May or in early June.

Magnolia rubra (Chinese red).—This is a variety of the preceding, of more slender and erect habit, with larger flowers of a deep purple color.

What Made the Difference.

BY S. E. MOUR.

"IT certainly is not the amount of money you have laid out, nor is it time alone that has effected the pleasing change—what is it?" "It is an *educated taste* that has done it, and this is what has educated me," and my friend pointed to a row of plainly bound books upon a shelf by the window in the cosy parlor where we sat looking out upon as pretty a bit of lawn as one could wish to see. Six or seven years before I had looked out upon this same lawn, but with far less pleasure than now. My friend had built a snug house upon a lot which allowed him a plot in front perhaps seventy-five feet square and a strip of land beside the house. A touch of sentiment—an undefined feeling that the home would be more a home for it—a desire to do as the more intelligent of his acquaintances did—together with a very clear notion that it would make it worth more money, all this I say caused my friend to resolve that the yard should be "fixed up." As it was hardly worth while to employ a landscape gardener for so small a place, he proposed to do it himself, and so rejecting the overtures of numerous importunate "tree missionaries," he sent for John Nurseryman & Co.'s catalogue, and to his attentive wife carefully read the thrilling descriptions and discriminating commendations that invariably make such original pamphlets of great value as guides for ignorant folk. But let him tell his own story:

I did not know anything about how these things looked, how large or of what shape they would be when full grown, where to put this, that or the other, and so I blindly selected a list of items, being guided chiefly by the remarks in the catalogue. Well, the things came and were good enough, I suppose, for the kinds. I took good care planting, and nearly all lived. The "beautiful" silver-leaved Abele threw up a small forest of suckers, the rose Acacia did ditto—peculiarities by the way, not prophesied by the catalogue. (I had finally to trench the ground three feet deep and rake the earth to get the roots out.) The propagators omitted to cut the leaves of my birch, and in the place of honor stood the vilely common Swamp Birch. The three-dollar Variegated Weeping Mountain Ash sometimes had sickly yellow leaves upon its straggling branches, and sometimes only green ones. The "variegated" part was a humbug, and I did not know enough to make a head on the tree by cutting it in. The "splendid Flowering Thorn" (out of place in our hot dry climate) turned into a rusty black bush about July,

and so remained, greatly to my disgust. The Japan Quince grew into a spreading tumbling bush with occasional flowers. I put out a wisteria and a bignonia because they were "magnificent climbers;" one by the porch and the other at the end of the veranda. They were too magnificently coarse for the situation, and their clumsy branches gave an air of loud vulgarity to the ornamental house front. The evergreens grew with unusual and unfortunate vigor, for they soon gave a gloomy Norwegian aspect to a place that should have been the most cheerful. Altogether, though I could not say why, the grounds were repulsive to me, and I heartily concurred with a passerby whom I overheard pronounce the place a "regular mess." So it was when you were here six years ago. Not long before your visit, my wife subscribed for "THE HORTICULTURIST." It was entertaining in the highest degree, and we all, big and little, read it and grew to like it. It gave us the opinions and theories of scientists on the subject of horticulture; gave the experiences of people who failed, and of people who succeeded in attempts to produce fine trees and proper effects by tree planting; told what to plant and where to plant to secure given effects; told how to prune, stimulate and train; described the peculiar care certain things require; told what would be the matured results of all methods, and in short, gave us a wealth of information in a practical and interesting manner. I must go aside to say that its influence upon the children has been for the best. It has set them thinking and talking about what makes their home pleasanter, and when children are greatly interested in home matters you need never fear to trust them away from home. Then, too, they are learning to closely observe Nature, that mother of us all, who teaches none but the purest lessons. They never read in "THE HORTICULTURIST" about any crime or vileness; there are no apologies for evil; no defences of party wrong, nor of mean ambitions, or selfish graspings of place or pelf. We are every one of us better for each number. But as I said, shortly after you were here, I went in for a general revolution. I cut up the miserable Abele and Acacia, and all the evergreens but one. By shifting the gate, the path, instead of being painfully straight from the street to the door, was apparently compelled to curve around the evergreen which, as you see, also conceals the door from the gate. Removing the two spruces from the corner of the yard gives from this window a view across yonder busy street and into the park. In place of the Weeping Mountain Ash (too old for improvement) I put the charming round-headed Weeping Cherry, which is just before you. It will never grow so as to hide the window, yet we can look down on its fine wire-like branches, tiny glossy leaves and early summer pure white flowers with pleasure. The wisteria I trained from the porch over an arch which springs across the carriage way. The big bignonia was dug up, and the veranda is, as you see, ornamented, not cumbered with the delicate Ampelopsis Veitchi. The Japan Quince has been severely pruned until it is a dense shapely bush, and is in spring a perfect blaze of scarlet. What has lately been done with the old trees, together with the setting of a few new ones, has been intelligently done, and I know the result is good. There are trees enough to afford shade, variety and contrast, and yet they are not so crowded but that the yard is sunny, and each tree has opportunity to display its beauties. In size, character and number the trees are appropriate to the size and location of the yard and the style of the building. And this is all the result of the monthly I have named. It has made us really love these trees so that I am almost ashamed to say how this change has added to the money value of the place. By admissions of would-be purchasers, it is on account of these decorations worth nearly a thousand dollars more than my brother's place just up the street, and his house is just like mine, but has nothing in the way of trees about it. Whichever you consider best, the increased value of the place or the elevation of sentiment, and the wider and purer intelligence that has come from the change, it has been brought about by that little magazine at

your elbow, and that is what has made the difference.

Editorial Note.—We thank our friend for such appreciation. Thousands more need the same "renewing influence," but will not pay for it. Hundreds have had the beauty of such influence illustrated in their own experience, but they never tell us of it. Why not do it now?

Plants for Vases.

WE have seen and heard much latterly of the correct way to plant vases, or perhaps it would be better to say, to fill vases with plants. It has always appeared to me desirable to consider first the fitness of things. If we plant a bed, it is well to adapt the size of the plants we use to the purpose intended. In planting a geometrically laid-out flower garden it is absolutely necessary to keep in view the design; so in planting a vase: if it be intended for a vase of flowers, let it be so; if for a single plant, as a fern etc., good taste is not outraged; but do not let us attempt too much.

We have covered the surface of a vase with *Lycopodium denticulatum* when a specimen *Cyathea* has been growing therein, and do not think it objectionable. The same may be said of *Tradescantia*, with a little qualification. We do not think it at all advisable to attempt planting a ribbon bed in an ordinary-sized vase. We say *attempt* because we have seen frequent trials of the plan, but never a success.

If we take one of the light, elegant vases usually found in drawing-rooms, for the purpose of holding flowers, and put therein one truss of Everlasting pea, one of Mignonette and a sprig of Smilax or a frond of maidenhair fern, we have something light, airy and graceful. Ought not a vase to be planted after the same manner? We usually select nice, well-grown plants, of short stocky growth, well furnished: *Coleus* or *Achyranthes Lindenii*, or *Borbonia*, for centre, and put *Nierembergia gracilis* with it; then we use in "glorious profusion" such plants as *Maurandia Mikania scandens*, *Thunbergia*, *Tradescantia*, *Torrenia Asiatica*, *Tropœolum*, *Verbena*, and many other plants according to the position of the vases, whether shaded or otherwise.

For upright plants amongst these trailers and climbers we place dwarf-growing, free-blooming Fish geraniums, with here and there one of the scarlet cut-leaved varieties, also plants of *Pilea*. It is, of course, of the first importance to have the drainage perfect, so that the soil may never become water-logged. Have the soil such that all the plants will grow luxuriantly; then keep the upright growing plants pinched in so that they will never become leggy, but keep well filled up with foliage. The foliage of the cut-leaved varieties of geranium, *Nierembergia*, *Pilea*, etc., prevent anything like a heavy appearance, and we think the effect far preferable to the usual plan of putting a strong geranium, *Coleus*, or any rank-growing variety of plant in the centre, allowing such to outgrow and overtop everything beside. For a white-leaved plant we have found *Gnaphalium lanatum* well adapted for vases, although not good as a bedder.

We do not say the exact number of plants nor the varieties which may be put into a vase at one time; every one can make a selection suited to the purpose, and if plenty of trailers be used, and the upright plants be judiciously placed and kept in proper trim, we do not think a vase will have a crowded appearance.—*N. F. F., in Am. Farmer.*

Picea Parsonii.—A correspondent of the London *Garden* says that without doubt it is one of the most beautiful, if not *the* most beautiful of Californian firs ever introduced. The extraordinary length of the leaves, which are incurved in a peculiar manner, displaying the silvery green of the under surface, the wonderful vigor, rapidity of growth and beautiful regularity of the branches, which in most cases are arrayed in whorls at the end of each year's growth, combine to render it one of the most lovely of its tribe. In hardihood it exceeds many of our indigenous trees, having withstood the frosts of 1860–61 and 1864, and the extraordinary wash of the first of June, 1865 (when many larches in the neighborhood were completely killed), not one leaf being injured.

The Flower Garden.

A Bed of Choice Roses.

BY A. S. FULLER.

VARIABLE as tastes may be in regard to other plants, few would willingly confess to a *non*-admiration of the rose.

To this one family of plants, at least, the civilized world "draws near," while the intensity of adoration varies in accordance with the capacity of individuals to draw pleasures from such a source.

If one admires the gay, gaudy and scentless, the desire can be gratified in the many varieties of prairie roses, while beauty of form and color, with odors unsurpassed, may be found among the Teas, Bourbons, and Noisettes, not omitting a glance at the June roses and their innumerable offsprings.

But, while everybody will readily confess to a fondness for roses, we find that "everybody" is not, for some reason, a succesful cultivator of this universally admired flower.

Rose bushes, it is true, may be seen in every garden, but they are far too frequently overgrown with weeds and grass, the soil about them dried up in summer when the plants need moisture most, and withal too poor to insure a vigorous growth of wood or the full development of blooms.

Three conditions are positively necessary in order to have a good showy bed of roses: 1st. Good varieties; 2d. A deep rich soil, and the deeper and richer the better; 3d. Frequent stirring of the surface soil during the summer, in order to keep down all grass and weeds. If these three conditions are attended to, failures would be few and far between.

Of course there are hardy and tender sorts, but the difference in the care required to make all succeed, even in cold climates, is scarcely worthy of notice.

For my own part, I prefer the tender kinds, such as the Teas, Bourbons, and Noisettes, on account of the profusion of flowers given throughout the entire season; and this more than compensates for the extra cost of bending down the canes in winter and covering with coarse manure or soil. I have practiced this plan of protection with perfect success, and also that of taking up very small plants and heeling them in, covering with earth only.

The protection should not be given until after several frosts, and the earth has become cold, for if covered too early there is danger of rotting the tender stems.

Many of the half-hardy and hardy varieties are greatly benefited by a slight protection, if no more than laying the stems upon the ground and keeping them there with a stone or block of wood.

It may answer very well to plant a climbing or pillar rose, singly, but for all the dwarf sorts, massing in beds is the only method of insuring success in vigorous growth and a brilliant show of bloom.

In arranging the beds it is well to put those of each species or class by themselves—Moss roses in one bed, Hybrid Perpetuals in another; while the monthly or ever-blooming sorts, such as the Teas and Bourbons, may be planted together.

For a small bed of these, I would select two to four plants of each of the following six old and well known sorts: Agrippina, Bon Silene, Hermosa, Isabella Sprunt, Lamarque, and Safrano. Of course there are hundreds of other varieties very similar, and under certain conditions better, but for bedding-out or house culture, they are quite satisfactory to many others, like the writer, who has cultivated hundreds of sorts belonging to the same class. But whatever varieties are planted, let the cultivator remember that a deep rich soil is indispensable.

Ismene Calathina.

BY A. G.

THIS bulb does not seem to be well known among amateurs; and yet its cultivation is so easy, and its beauty and perfume so desirable, that we wish to call attention to it, particularly as a garden bulb.

When regularly cultivated, the bulb is of a light brown, and shaped somewhat like a yel

low onion; but varies like them in size, according to cultivation, those in the garden not reaching quite the size of those left undisturbed in pots.

The leaves are of a light green, and from twelve to fifteen inches long, being broadest at the middle, and form a curious stem before emerging from the bulb. The plant when in full vigor bears a slight resemblance to young corn, the leaves being from one and a half to two inches broad.

The flower is cup-shaped and about three inches long. It is sometimes more than three inches in diameter at the opening, where it has a slightly fringed appearance, owing to the projection of several white points deeply notched. Inside it is shaded with a beautiful tint of green. The flowers number from four to six, the bulb sometimes throwing up two stems in succession. The perfume is very delicate and pleasant.

These bulbs can be treated exactly as a gladiolus bulb, or can be potted, and when dormant be set away in the cellar. The flowers become rather larger by cultivation in pots. Any good garden soil suits them. They should have an abundance of water while growing. They bloom in early summer. They increase by offsets, which sometimes are so numerous as to prevent their blooming, the whole bulb seeming to separate, instead of increasing in size. We think they would be hardy in the southern States, as we have known a bulb to bear the winter here, in the ground, and come up, though it afterward died during the moisture of the spring. Herbert says these bulbs are found in Central America, but were supposed to have come from Brazil—the yellow ones, *Ismene Amanceas*, being found in Peru.

Novel Way of Treating Hollyhocks.

I AM a great admirer of Hollyhocks, but I dislike the coarse and unsightly appearance which they assume in a short time after the first flowers have faded, or been reduced to a pulp by rain or strong sunshine, and also the inferiority of the extreme terminal flowers of the spike. To obviate this last defect I have been in the habit of cutting out the top while the lower blooms were in perfection. This year during my absence from the middle to the end of June, my man thought he was doing good service by removing the tops before the flowers appeared. The result has been to spoil the main spike, which grew up stunted and closely packed; but to make up for the disappointment, from every axil on the main stalk there has sprung out a number of shoots, forming elegant and graceful branches, to the number of more than twenty on some of the plants. These are now covered with perfect flowers, nicely spaced and distinct, alternating with very small leaves, and they look as if they would continue in perfection for another month. I do not know with what to compare their appearance; I have seen nothing like them. As these shoots grow uniformly round the stem, the general outline is that of a trained pyramidal tree with about one hundred flowers expanded at once, and you may conceive what a fine effect the various beautiful shades of color must produce. If any of your readers are inclined to try the experiment, I would recommend having only one stalk left on the stool, which can be more easily staked and secured than a greater number, and will form a more elegant object than a number crowded together as usual. I may add that I have just been measuring one of them; it is seven feet high, and four feet across at the lower part, tapering to the top. The side shoots do not exeed half an inch in diameter.—*J. W., in The Garden.*

Roses for American Gardens.

Messrs. Ellwanger & Barry, of Rochester, have an immense collection of Roses, numbering over four hundred varieties, and covering eight acres of land. The following ten have been selected as the best for the American garden:

Blanche Vibert.—One of the purest whites.

Caroline de Sansal.—Clear delicate flesh color, becoming blush. A fine rose, and for a light colored one, not surpassed.

Maurice Bernardin.—Beautiful clear vermilion, imbricated, large, one of the best.

Marie Bauman.—A new variety and very promising; vivid red, large, full and very fine form.

Comtesse Chabrillant.—Bright pink, beautifully cupped, large and full, very fragrant. We consider this one of the best of light colored varieties.

General Washington.—Brilliant rosy carmine; very large and fine form and a free bloomer. This always find a place in the smallest and choicest collections.

La France.—This is a new variety that received high consideration in the lists presented at our annual meeting. Silvery white, back of petals rose; large, full and of good form.

Madame Victor Verdier. — Rich bright rose, very large and compact; finely cupped; blooms in clusters, a free bloomer. It struck us as one of the best, if not the very best, of rose-colored varieties.

Prince Camille de Rohan.—Rich velvety maroon, shaded to deep red; one of the finest of the darkest sorts.

Senateur Vaisse. — Bright red, beautiful shape and free bloomer. Mr. George Ellwanger put this in his list of "best six" at the annual meeting of the Western New York Horticultural Society, and we are satisfied that it has no superior of the same color.

Lilium Auratum among Shrubs.

An exchange, in speaking of the importance of keeping some species of the lily shaded during the heat of summer, mentions the rotting of the scales of Lilium auratum when employed in attempts at propagation and increase, and states that a quantity of partly decayed scales, supposed to be too diseased to propagate from, were thrown on a heap of potting mould, and this was afterwards spread on the surface under shrubs. The next season a crop of young lilies was seen among the shrubs, and in two or three years they bloomed finely. In another case, a pine tree was planted nearly over a bulb, which grew and bloomed profusely,

The *Country Gentleman*, in speaking of the same subject, says: "We have found some species of lily always to do best in the shade, and in answer to occasional inquiries as to the best plants for the shade of trees would mention these lilies, and especially the wild L. Philadelphicum, the brilliant orange-red petals of which exhibit their colors to better advantage when under shade as in their native localities.

A Dahlia Garden.

WHILE examining the grounds at Slough I was struck with the exceeding neatness and care bestowed upon the Dahlia plantation, so entirely different from the usual careless methods of American gardeners. Here each plant in the large collection was not only tied securely to a neat stake, but each branch was pinched and trained with as much solicitude as if it was a young fruit tree, destined in the future for an *espalier*. Each individual plant was a perfect specimen, with the buds all starting at equal distances, and precisely where they were most desired. This I thought was surely the perfection of plant culture. If space served I should like to speak of the immense plantation of Carnations, for which Mr. T. is famous, and of the thousands of seedling Pinks originated by him. When we consider the months of careful, patient watching and nursing, resulting in most cases with but two or three really good improvements on the old types, we can appreciate the labor of those who are engaged in such work. —*Josiah Hoopes, in Tribune.*

Roses that are Good.—A "Rosarist" of much note amongst the rose growers of England, states that of the good old roses which have retained their place and position, and have seen the death and exit of many hundreds of roses that came up like shooting stars and blazed for an autumn and then faded out, the following are worthy of note: "Baronne Prevost, La Ville de St. Denis, William Griffiths, Acidalie, Souvenir de la Malmaison, Souvenir de la Reine d'Angleterre, Triomphe de Paris, Madame Louise Carique, Alexan-

drine Bachmeteff, and Madame Campbell. All these roses have been under my care for many years; they are stalwart bushes on Manetti stock; they have seen the death and exit from the catalogue of many hundreds of roses. Surely, "a living dog is better than a dead lion.'"

Another "Rosarist" claims that Madame Lacharme is not only a true perpetual, but also the finest rose produced in 1872, all the rest being rubbish. Its vigor and bloom render it valuable, and is equally good on the Manetti or the brier stock.

Plants for Autumn Blooming.—The same writer speaks of some very pretty fall-blooming hardy herbaceous plants: *Aconitum*, or monk hood's family; the *Tricyrtis*, with fragrant, curious flowers; *Funkia-ivafolia*, a species of day lily, with narrow leaves and a profusion of pale blue flowers; our native *Chelone gabra*, or snake's-head, with curiously shaped white bloom; *C. Lyoni*, a species with charming rosy-red flowers; the Japanese anemone, *A. vitifolia*, both white and red varieties; and the gorgeous Chrysanthemums, of every conceivable color. From the first tiny snow-drop peeping through the snow in very early spring to the present time, this valued class of plants has given us a constant succession of beautiful flowers; and now, just as Flora, on the approach of winter, is about to take her departure for a season, she seems to throw all her energy into one triumphant effort for superiority at the close.

A Fine Wistarea.—Mr. Hoopes, in his visit to Europe, last year, witnessed in "the celebrated nurseries of Mr. Turner of Slough, England, a noble old vine of the Chinese Wistarea, with a body about the size of a man, and with branches clambering all over the seed-store, thence to the mansion, where it rambled all around and over it so as to completely cover the walls from view. When in full bloom what a sight it must present is difficult to conjecture. I believe this vine is one of three, the original importation from China many years ago. Curious to relate, this dwelling was almost totally destroyed by fire a few years since, but only the smaller branches of the Wistarea were injured. At the completion of the present mansion, a new set of limbs were started, and now these cover every portion of the house.

Spiræa aruncus.—Those who want a fine and effective hardy herbaceous plant for any permanent position in the shrubbery or flower borders (says the *Gardener's Chronicle*), should not overlook the old but not half-known Spiræa aruncus. When grown in a rather peaty soil, on a cool bottom, which is what suits it best, its inflorescence rivals if it does not excel that of the famous Astilbe (Hoteia) japonica, while its handsome tripinnate foliage completes the picture of one of the most elegant perennials grown in our gardens. For cutting, it is quite equal to the plant just named; while in the growing state, under favorable circumstances, since it reaches at least a height of three to four feet, it may be employed to occupy positions where that would be altogether ineffective.

A Japanese Shrub.—A correspondent of *The Tribune* takes great pride in pointing out a novelty from Japan, by name *Rhodotypus kerrioides*. I suppose almost every one in the country is acquainted with the old-fashioned *Corhchorus* or *Kerria japonica;* well, this new plant resembles a single form of the latter, except that the flower is pure white. The proper flowering season for it is during April and May, but my specimen concluded to give me a treat during the autumn, so it opened several very bright flowers.

Carelessness of Nurserymen.—Nurserymen are, I think, becoming rather careless in sending out plants, etc. I have a purple Clematis which should have been white—a common brier which I paid for as a "John Hopper"—a prairie rose which I bought as a "Mad. Delongchamps"—white Heath Cling peaches which ripened in August and were free stones—all from different first-class nurseries.—*Cor. Country Gentleman.*

Roses.—A "Rosarist" recommends as good dark roses the varieties known as Louis von Houtte, Baron Chansaud, Maxime de la Rochterie, and Baron de Bonstettin; and also remarks: "We want good roses, not only better than those we have, but also distinct from them."

Gardening.

Forest Shelter Belts—European Experience.

IN an address, given recently before a rural club, considerable emphasis was given to the importance of shelter belts of timber by the following quotations of eminent observers.

"'In consequence of the felling of the woods in the Apennines, the sirocco prevails greatly on the right bank of the Po, in the Parmesan territory and in a part of Lombardy; it injures the harvests and the vineyards, and sometimes ruins the crops of the season. To the same cause many ascribe the meteorological changes in the precincts of Modena and Reggio. In the communes of the districts where formerly straw roofs resisted the force of the winds, tiles are now hardly sufficient; in others, where tiles answered for roofs, large slabs of stone are now ineffectual, and in many neighboring communes the grapes and the grain are swept off by the blasts of the south and south-west.' On the other hand, says Marsh: 'According to the same authority, the pinery of Porto, near Ravenna—which is thirty-three kilometers long, and is one of the oldest pine woods in Italy—having been replanted with resinous trees after it was unfortunately cut, has relieved the city from the sirocco to which it had become exposed, and in a great degree restored its ancient climate.'"—*Le Alpi Che Chingons l'Italia, pp.* 370 *and* 371.

"Turning to Belgium we learn that 'a spectator placed on the famous bell tower of the cathedral at Antwerp saw, not long since, on the opposite side of the Scheldt only a vast desert plain; now he sees a forest, the limits of which are confounded with the horizon. The supposed forest is but a system of regular rows of trees, the oldest of which is not forty years of age. These plantations have ameliorated the climate, which had doomed to sterility the soil where they are planted, and sands far more barren than the plateau of La Hague have been transformed under their protection, into fertile fields.'"—*Revue des Deux Mondes, January,* 1859, *page* 277. "In consequence of English iron being thrown out of market by Napoleon I, the Italian furnaces of Bergamo were supplied with fuel by deforesting the region around, and the climate of Piazzatore became so severe that the grain crops failed. 'An association formed for the purpose effected a restoration of the forest, and maize again flourishes in the fields of Piazzatore.'"—*Il Politecnics, December,* 1861, *page* 614.

"Becquerel estimates that practical experience in the valley of the Rhone has demonstrated a simple hedge able to act as a shelter belt for a space to the leeward of it of width equal to eleven times the height of the hedge. A test of over a quarter of a century, in one of the richest sections of Illinois, has proved that twenty acres planted to forest trees will supply fuel and fencing for a farm of 160 acres, and also furnish a secure shelter belt for successful fruit growing."

How to Plant Evergreens,

Especially Small Forest Plants or Seedlings.

BY WILLIAM MORTON.

IN answer to inquiries on this subject, the following directions, if faithfully carried out, will save nine-tenths of your plants every time, let the season be what it will; at least such has been our experience in transplanting hundreds of thousands in our own grounds; and should other parties know of a better method, we would be thankful for the information.

Buying Stock.—Procure good plants, well rooted, and be sure the *roots* have never been *dried* in the sun or wind, which is easily ascertained by starting the *bark* on the root; if fresh and good, the wood will be *white;* but if they have been dried (no matter if dripping wet when received), the wood will be *red* and *discolored.* Plants in that condition are not worth half price.

Time to Plant.—From April 1st to July 1st; May 15th to June 20th preferred. In fall, from Sept. 20th to Nov. 1st. The above dates apply to our location here in Maine.

Selecting Soils.—Any good soil is all that is required, if it admits of thorough drainage, as stagnant water round the roots is almost sure death to evergreens. Arbor Vitæ and Larch will live in low wet places; yet a good dry soil is just as well, or better.

Preparing Soil.—Spade deep and pulverize thoroughly. If manure is used, take that which is *old* and *well rotted*, and mix thoroughly with the soil. *Never* use *fresh* and unrotted manure. Now make into beds four feet wide, and but little higher than the sursounding soil.

Preparing Plants to Set.—Sort your stock so as to plant each size in a bed by itself. Puddle the roots well by dipping in a mixture of mud and water, about the consistency of cream; then cover the roots with damp moss or earth, and the whole with some old canvas, or other material to prevent drying.

How to Plant.—Let no workman take more than 50 or 100 plants at once (this applies to the four to six or six to ten-inch size), in order to prevent the roots drying as little as possible; then set in the beds (with a garden trowel), as thickly as possible, and, if *Arbor Vitæ*, plant so that the *lower limbs* will reach the ground, no matter how deep you have to set the plant to do so.

Shade.—As fast as planted shade with evergreen boughs, or lath screens placed one or two feet above the beds. Remove the shade in fall.

Fall Planting.—Treat as above, but instead of shading, *cover* well with boughs. In spring, remove covering, and then shade as above.

The above directions are given from practical experience in our own grounds, with the belief that, if carefully followed by tree planters, their loss on small evergreens would be very much less than at present.

Allen's Corner, Maine.

Gardening in Winter.

A MONTH of exceedingly valuable time can be saved for spring or summer by utilizing the winter months. Among the items easily attended to, even with snow on the ground, are, (1) cleaning out groves, removing such trees as are not shapely, and limbs that are decaying or superfluous. A grove is attractive in proportion to the clean shafts of the trees; and in places the conception of grandeur should be given by trimming away all low-growing branches with a ladder. This can be best done in winter. A few straggling young trees, twisting about for light, can spoil the effect of an otherwise charming grove. (2) Grapes not trimmed in the fall can be attended to in winter, with a little extra care in handling. (3) Apple trees can be gone over to remove suckers and recent shoots; or even in some degree larger limbs. (4) It is a good time to get brine of the butchers and salt your asparagus, quinces and pears. The first two will devour a hearty amount. The pears will not be injured by a somewhat copious supply. Or, for lack of brine, sow salt. (5) Make out your orders for such trees and shrubs as you will need in spring, and study your lands well to know just where each one is wanted. (6) Get boards, etc., ready for fences if you do not live where such abominations are abolished. (7) Cut up any stump, log or limb that may have been lying about and waiting for an odd hour. In this and similar ways winter is made pleasant; and a week or, possibly, a month of time is saved for spring and summer. Even a day *tells*, when the time comes for plowing and planting. The secret of pleasure in gardening is never to get hurried.

A rustic bee-house is one of the pleasant features on a friend's homestead. Generally, a bee-house is, if not unsightly, at least devoid of good taste; but in this case a more charming pavilion could not be conceived. It was built by himself, and was inexpensive,

How Late can Pears be kept with Profit?

EACH kind of pear has its season, and, in case it is a popular market one, it will during this time meet with a ready sale, and usually at paying rates. When the height of the season is over, and such kinds as the Bartlett, Seckel and Duchesse are growing scarce,

they are certain to advance rapidly in price, often bringing three or four times as much as they commanded two or three weeks earlier, when the market was abundantly stocked. This was strikingly illustrated the past fall with the Bartlett and Seckel. At the beginning of September these were sold at from $6 to $8 a barrel. In less than four weeks they had advanced to twice these figures; and a week later still there was a brisk demand for them at $20 to $30 a barrel of only two and a half bushels. These rapid advances have caused fruit growers to expend large sums in constructing retention houses for keeping fruit back; but very few have found any profit in the process. They have generally held on too long, and lost all or the better part of the expected returns. A number of instances have come to our notice where large lots of Duchesse, kept until after the holidays, have then been disposed of for less than the price paid for them in October. When Bartletts were getting out of their season the past October, they were in good demand at from $16 to $24 a barrel, according to quality; and yet a month later fine Bartletts, carefully packed, were sold in the same market for $10 and $12 a barrel, with little or no demand. Well-informed fruit dealers are almost unanimous on this point, that it seldom pays to keep pears back longer than a few weeks at furthest, and that growers should sell before the demand falls off. These facts are given for the consideration of those who contemplate the erection of fruit-retention houses this winter in time to fill them with ice for next summer's use. Whatever profit may be found in keeping other fruits back a couple of months later than their time of ripening, experience has shown that pears should not be held longer than two or three weeks.—*The Tribune.*

Strawberry Notes from Missouri.

BY S. MILLER.

LIKE Mr. Webb, of Kentucky, who gives you notes in the present number of the HORTICULTURIST, I am trying the new strawberries I can get hold of. If my Black Defiance is anything but Albany, I am not capable of judging the difference. As soon as the plant started in the spring it had a familiar look to me, and, when the fruit came and the plant well grown, recognized an old acquaintance.

Late Prolific did not fruit; Kissena failed; but from Mr. Webb's account I have not lost much. But while some of these are not amounting to much, there are new ones that can be looked on as of great promise.

Monarch of the West, Triumph of Cumberland and Springdale. For size of berry, vigor and productiveness of plant, and superior quality, it would be hard to pick out three others to equal them. The former brought prominently before the public by Wm. Parry; the latter two seedlings of Amos Miller, of Carlisle, Pennsylvania. His are a cross between Green Prolific and Jucunda.

We have here several seedlings that, if they bear another season as well as this, we may give an account of. One, a seedling of the Shakers, of very superior flavor, and otherwise fine. Star of the West averages the largest I ever saw, but is deficient in flavor. Maud Miller would pass very well among the brag varieties now on the list. Among the older ones, Green Prolific and Shaker are as reliable as any.

Bluffton, Mo.

Extent of Grape Culture at Nauvoo, Illinois.—The following statement of acres planted in grapes in Nauvoo and Hancock county, capital invested in business and the annual income therefrom, was furnished by John Bauer, of Nauvoo, at the annual meeting of the Grape and Wine Grower's Club, held on January 25th:

Eight hundred acres planted in grapes in Nauvoo and vicinity, and 2,000 acres in the entire county of Hancock. Expenses of preparing ground, procuring plants, planting and cultivating the same for four years, or until they are in bearing condition, $400 per acre—$800,000. Investment in casks, presses, and

other implements necessary for the business, $275,000. Building 70 wine cellars and 150 press houses, $450,000. Wine made in Nauvoo and the balance of the county, 300,000 gallons. Average price per gallon from 1860 to the present time, $1.50 per gallon—$450,000. Vacant land sold in Nauvoo before the culture of grapes was carried on at from $5 to $10 per acre. Since we cultivated the grape the same vacant land sells for $100 to $150 per acre. Total number of acres, 2,000; total capital invested, $1,500,000; total number of gallons per year, 300,000; total income, $450,000.—*Gate City.*

Cure for the Currant Worm.—I wish to tell some of your readers (if they do not already know it) how to surely rid themselves of that *terrible* pest (in these parts), the currant worm, that kills in a very few days, if left alone, all the foliage of our currant and gooseberry bushes. Put about one-fourth pound of powdered hellebore in a bucket of water; let it stand two or three hours, or over night, and thoroughly saturate the foliage with this solution, with a common garden pump, or syringe. Just as soon as they make their appearance one good application is generally effectual, but must be repeated whenever they make their appearance, about three times in the season. Should use care as it is poisonous. J. R. GUINDON.

Lynn, Mass.

Two Beautiful Evergreens.—The *Rural New Yorker* introduces, in complimentary terms, notices of two new evergreens, *Victoria* and *Columbia.*

"Both, we believe, are accidental seedlings of our common American Arbor Vitæ, and quite similar in appearance. They are what is termed silver-tipped varieties, the terminal leaves of all the branches being silvery-white, affording a beautiful and marked contrast with the deep green of the leafy branches below.

"The golden-tipped Arbor Vitæ is becoming pretty well known, at least among those who are seeking novelties of this kind, and can afford to pay $3 to $5 each for very small plants; but the 'silver tips' are even more rare. Still, they are on the way to fill a niche in the evergreen temples long vacant. The principal difference between Victoria and Columbia is in their habits of growth; the first being what might be termed a rather tall and slender grower, while the latter is very compact and stocky, although vigorous and quite hardy. They are both as beautiful as they are rare, and we have no doubt that they will be highly appreciated by all admirers of handsome trees and shrubs."

The English Yew.—A writer in *The Rural New Yorker* says that this, as well as other dwarf evergreens, and especially those of foreign origin, needs a soil for its roots covered or embedded with stones, or among rocks. Nature demands for many varieties of evergreens and creeping plants a cool, steady moisture for their roots. If such be supplied, their foliage is not liable to burn and brown; but without such moisture at base, let me say, the man who plants the Yew should plant only our American variety. When well grown, it is even more beautiful than the English, and rarely, if ever, becomes browned in winter.

Paris Green for Vines.—It is not generally known that Paris Green, mixed in the proportion of one part by measure to twenty-five parts of flour, will kill the striped bug from off cucumbers, squashes, musk-melons and other vines, except water-melons, the leaves of which latter are sometimes spotted if the mixture be used strongly. It may be dusted on from a gauze bag or dredging-box. Usually too much of the powder is cast on. The slightest possible quantity evenly distributed is sufficient; and it should be applied in the morning while the dew lies on the plants.—*Western Rural.*

Jasminum nudiflorum.—The Jasminum nudiflorum should be trained to a stiff stake, and get a pruning with the shears twice a year; it then grows very compact, and will support itself after the stake rots away. Then it makes one of the prettiest shrubbery bushes imaginable.—*The Gardeners' Monthly.*

The Alexander Peach.—A fruit-growing firm writes to the *Prairie Farmer* that the Alexander peach is far ahead of the Hale's Early.

Fruit Culture.

Ohio State Horticultural Society.

BY M. B. BATEHAM.

THE annual meeting of this Society, held at Akron, Ohio, the past month, was of more than ordinary interest, especially to fruit growers. The attendance was large, and the reports and discussions were timely and well considered. The question of first importance, as affecting the fraternity in Ohio, was, How to use or dispose of perishable fruits when the crops are superabundant, or the prices too low to afford compensation to the producers? This led to a variety of suggestions, and a pretty full investigation of the merits of the different improved methods of drying or "evaporating" fruits; also the modes of constructing fruit houses for storing and keeping apples and pears for the winter and spring markets.

The following portions of our doings and sayings may be of interest to fruit growers generally:

Plum Culture in Ohio—Success in Combatting the Curculio.

At the late annual meeting of our State Horticultural Society an interesting account was given of the experiment of Messrs. Brown, near Norwalk, O., in the culture of plums on an extensive scale for the markets, and their successful method of protecting the fruit from the curculio.

These gentlemen commenced, in the spring of 1871, with planting two thousand trees, seven hundred of them Lombard, the rest consisting of a half dozen or more leading varieties. The trees grew finely, and some of them bore fruit the third season after planting—the Lombards most of all. The fourth year (last season), the Lombards bore a very full crop—too much for the good of the trees—most of them averaging a bushel of fine fruit per tree; and some of the other kinds a fair crop. All the fruit sold at high prices; the Lombards and other large kinds as high as $7 to $8 per bushel. In the meantime the planting has been going on each year, so that the orchards now contain five thousand trees. The soil is a good strong loam, such as is considered good corn land—sufficiently undulating to afford surface drainage—and the trees are kept well cultivated. Manure will be applied to keep the trees in health after bearing full crops.

Fighting the Curculio is done by the jarring method, on the plan of Dr. Hull of Illinois; but the "catcher" and *modus operandi* are improvements invented by the Messrs. Brown. Their catcher consists of a sheet of strong muslin, stretched and fastened on a frame of light ribs, in shape something like an inverted umbrella. This is mounted on a handbarrow having two light wheels; and on the side of the frame or canvas farthest from the handles of the barrow is a contrivance for opening a slit or crevice wide enough to admit the body of the tree. This is opened by the hand of the operator of the barrow, without stopping, and it closes of itself as soon as the axle reaches the tree. This contrivance for opening the canvas and closing it around the trunk of the tree is one improvement over the "catcher" of Dr. Hull; another consists in fixing a tin can in the lowest part of the canvas, so that the bugs will roll into it and be held by the soap suds, with which it is half filled, until a half day's work is done, when they may be dispatched with boiling water.

A second person goes along to jar the trees, which is done by a single forward blow of a wooden pounder, having the face well covered with rubber so as to prevent its injuring the bark of trees. Of course when the trees become large and stiff, it will be necessary to give harder blows, and perhaps in time several blows to a tree, jarring only one large limb at a time. But at present, and for a year or two to come, one blow is sufficient; and with this apparatus two men or large boys can easily average two trees each minute for hours together—or 700 in half a day, and with extra effort 1,000. The Brown Brothers used two machines the past spring, going over most of their bearing trees twice each day for about two weeks, and once each day for a week longer, commencing as soon as the blossoms fall off in May.

Other Large Plum Orchards.

In Ross county, about 150 miles south of the foregoing, we have still more extensive plum orchards, belonging to H. J. Bailey, and several others, of Chillicothe. These orchards consist mostly of Damson plums, chiefly of the Shropshire variety. The planting of these Damson orchards was commenced on a small scale, in that vicinity, more than ten years ago, and on a large scale within the past five or six years. It was reported that not less than fifteen thousand of the trees are now planted in orchard form in that vicinity. About one-third of these have already borne one or more good crops.

At first, and until the orchards have borne several crops, the curculio has not done much mischief to the fruit in that vicinity, probably not having hitherto been bred there in large numbers; but afterwards it is found necessary to resort to jarring, and the plan above described will no doubt be adopted there.

I have heard recently of others in this State who have commenced planting extensive plum orchards, or will do so next spring, feeling sure that the great obstacle to successful plum culture—the curculio—can be cheaply overcome by the method here described. It may therefore be regarded as a settled fact, that within a few years our city markets will be well supplied with fine plums. The necessity for fighting the curculio will deter most people from planting this fruit for home use; consequently the business will be all in the hands of the commercial growers.

Pear Culture in Ohio.

A little discussion was devoted to pear culture, at our annual meeting. Reports from different parts of the State showed that considerable loss of trees had been caused by blight, the past year. Much of this, it was thought, was in consequence of severe injury done by the cold winter the year before, which blackened most of the wood, and many trees were killed outright. No progress was made in discussing the cause or cure of blight, but the advice was, to plant again, and keep planting. Several market growers of pears said they found little trouble from blight, and it was an advantage to them; so many people were deterred from planting pears by the fear of blight, as to prevent the fruit from becoming cheap in the markets.

Mr. Fahnestock, of Toledo, said he had no serious trouble with blight after rejecting the Buffum and Louis Bonne varieties; attributed his exemption from blight largely to the form of his trees, branching so low as to shade the trunks from the sun; and to his practice of scraping and slitting the bark where it seems inclined to bind or become hard, then washing with soft soap and copperas water. His pear orchard of a thousand standard trees was quite profitable.

Mr. Ohmer, of Dayton, said he had lost some trees by blight, but still found pear culture to pay well, and had kept on planting. He found little trouble from blight, unless trees were stimulated into too rapid growth after commencing to bear. On his soil, which is a strong loam, he found it best to seed the orchard with clover when the trees come into bearing. He said pears were remarkably fine about Dayton the past fall, as those who witnessed the fruit at the Southern Ohio Fair could testify. Even the old Virgalieu, which had been generally condemned for its cracking habit, was as fair and handsome as in its palmiest days, when it was counted the finest of pears.

Foreign Names of Fruits.

Mr. Tipton, of Barnesville, expressed a desire that the Society should take some action in reference to securing more uniformity and simplicity in the spelling and pronunciation of foreign names of fruits, among nurserymen and fruit growers in this country. He suggested that a catalogue or glossary of foreign names might be prepared, with the pronunciation, as near as it can be given in our language, and some instructions for the spelling and pronunciation of foreign names generally—especially French and German.

Other speakers conceded that the object was a desirable one. It had been done in part by Downing in his fruit book, but should be improved and extended. The Secretary did not see how it could be undertaken by this Society, but if attention should be called to the subject, it is probable that Mr. Down-

ing or some other horticultural author or publisher will undertake the duty.

[For The Horticulturist.]

Trees Near the Line---The Law touching Them.

BLACKSTONE, in his Commentaries on the Laws of England, says, "Land has also in its legal signification an indefinite extent upwards as well as downwards. * * * It includes, not only the face of the earth, but every thing under it or over it," from the sky to its centre. Such was the common law of England, adopted in this country, (excepting Louisiana,) before, and maintained after, the Revolution. This common law is still in force in the United States, unless altered, or modified, by statute law.

If land includes every thing over or under the face of it, then the owner has a right to the branches that project over it, and to the roots that extend into it, from trees on the adjoining lot. Consequently, he has the right to take, to his own use, the fruits that grow on, or fall from, such branches, and also the right to cut off the roots and branches at any point on his side of the line. But he has no right, in making the amputation, to injure, (such as by splitting or peeling the bark,) the roots or branches, or to disturb the earth, on the other side of the line. A man has the right to dig on his own land as deep, and as near the line, as he chooses, provided he does not deprive his neighbor's land of its natural support of the earth. If he digs so near as to cause a caving in from his neighbor's land, he will be liable in damages for disturbing the earth.

If a man's trees, (either fruit or forest trees,) shade his neighbor's land, or house, so as to cause an injury to person or property, his neighbor has no legal remedy, provided the branches do not extend over the line. Whether the neighbor can recover damages caused to his soil by the roots of such trees extending into it—*quære*. I find no decision touching that point. But why should he not be indemnified for an injury caused by the root as well as by the branch of a tree?

Medford, Mass. MYSTIC.

Editorial Note.—This article is in answer to a recent article, in The Horticulturist, on this subject, and, in our opinion, very succinctly gives the law as it now stands generally throughout America.

Cherry Trees.—These should never be highly manured. Singular as it may seem, better results have been obtained by growing cherry trees in grass than by cultivating them as highly as pears. Experienced fruit growers in Delaware, who once began a system of manuring and treatment of cherry trees, found, after an experience of a few years, that the bark would burst, gum would ooze out, and many portions of the trees show an unhealthy condition. The growers immediately discontinued high feeding, and seeded the land to grass. The trees recovered their health, and have borne beautifully since the system of grass culture began. It is the only fruit tree of all varieties which we can safely recommend to be treated in this way. A Delaware friend says his row of cherry trees, growing in grass along the fences, are the picture of health and luxuriance; while in previous years with orchard culture he could never make them successful.—*E. P. Powell.*

Peach Culture.—There are nearly 600 growers of peaches at Montreuil, in the environs of Paris, and the crop this year—an exceptionally good one—was of the value of about $400,000. There are three gatherings each season; the first in July, for early sorts; the second at the end of August; and the third, for late peaches, about the tenth of October. For more than a month 500,000 (for in France, where they are produced at cost of great painstaking, peaches are counted by the piece instead of as with us by the crate or bushel) were received each morning.

Watermelons.— Amos Hendrickson, of Woodbury, N. J., is a very successful melon grower. His best of the season weighed 56 pounds and measured in circumference 47 inches. He picked two others the same day whose avoirdupois was 52 and 55 pounds respectively.

Window Gardening.

Window Gardening in Winter.

HERE we are, shut into our little conservatory or window garden, and twenty acres concentrated into twelve feet by eight. But we can get concentrated pleasure here.

Bugs of all kinds by this time ought to have been eradicated. If not, begin by dipping or inverting the plants into hot water, not too hot; then repeat it two days after. It will kill a few leaves possibly, but not so many as the red spiders and aphis. Wash the pots, shelves, brackets and walls with a strong suds of carbolic soap. Get the strong soap prepared for sheep dipping; the smell is healthy.

Arrange your plants to give the begonias, fuchsias, lycopods and ferns back seats; and the geraniums, heliotropes, primroses, abutilons, roses and matricaria see as much light as possible. Verbenas will not thrive away from the glass. Petunias will enjoy your coolest corner, and many thanks to them for taking it. Scarlet geraniums also endure well. Tropæolums should be helped to climb and just now be in bloom; they *must* have a sunny position. Set your wax plant high up, and train it over the ceiling. It will then grow rampant, and in spring bloom readily. Give it enough water. Passion vines and ivies can dispute room with the wax plant.

For bloom, the winter-blossoming begonias should be in their glory; also the primroses, callas, heliotropes, a few geraniums, some of the finest begonias, one or two roses, tropæolums, abutilons, and the speciosa fuchsias. Give the heliotropes a constant supply of water, and never allow them to get dry for an hour; also give them sunshine. The begonias will bloom as well in the shady side of the window; so also the fuchsias. Calceolarias should be used as pendants to cover bare places or unsightly spaces; only give them abundance of water and a good share of light. The double primroses, when in bloom, should never for an hour lack a full supply of water. If well cared for, they equal in glory anything that can be had in blossom before May. We ought, perhaps, to except the charming bouvardias, say Vreelandi and Hogarth, which, for waxen delicacy, profusion, purity of color and symmetry, deserve to be chief favorites.

Window gardening is a failure and nuisance without entire neatness. There should be constant turning of the pots to the light, and removal of every sere leaf. Plants thus treated are sources of health, but every dead leaf or decaying stalk is a source of disease to those who breathe their poison. No damp corners or wet floors should be endured; no mildew on pots, nor even sickly plants. Any plant that has not healthy foliage to absorb carbon and exhale oxygen, is harmful.

It is well all through winter, when you have a geranium that can be cut, to prepare a good supply for bedding out in spring. A cutting here and there in the pots will make roots, and not be obtrusive or exhaustive of the soil. The same can be done with any plants that will be needed for garden beds, such as salvias, heliotropes, abutilons and fuchsias.

Protection from cold is a matter that troubles most who rely upon stove heat. Cloth curtains dropped at night are of some use. Newspapers even can be used to advantage in covering during the coldest nights. No plant should be placed on the floor if there is the least danger of freezing. But no directions, without study and love for plant culture, will lead to success and satisfaction.

Begonias as Window and Bedding Plants.

BY ANDREW S. FULLER.

ABOUT two hundred years ago, St. Domingo had a governor who was a patron of botany—at least so say the old books, and from this we are led to conclude that he did not drive a man out of the country, or hang him, because he was caught studying weeds and such like (in the opinion of some persons) insignificant things. The name of this governor was Michael Begon, a Frenchman, and

in honor of whom the great botanist Willdenow named the genus of plants which is now known as *Begonias* or Elephant's Ear. The common name probably was bestowed upon these plants in consequence of the fanciful resemblance of the leaves to the ear of the animal named, the leaf stalk springing from near the upper end, and at one side instead of the centre, thereby producing what is termed an "unequal-sided" leaf. There are several hundred species named in botanical lists, the larger portion being natives of tropical America, although many have been found in other countries.

In addition to the original species, the florists of Europe and America have produced hundreds of hybrid varieties, many of them far surpassing the parent stock in beauty of leaf and flower. The leaves of the different species and varieties vary in size from a half inch up to a foot in diameter, and they are also of various shades of color, from a dark velvety green to a pure silvery white. We have also the striped, spotted and zonale sorts, the centre of the leaf being of one color, surrounded with a broad, distinct band of another.

The small-leaved sorts, such as *Fuschioides* and *Bulbifera*, are prized mainly for their flowers in winter, while the zonale and vittate varieties are valued especially for their large, showy leaves. To this latter type I would call the attention of those who desire plants that are perpetually beautiful, either for window culture or bedding out in summer.

The begonias, as a whole, require a rather coarse, friable and rich soil, and but little pot room in proportion to the size of the leaves of the larger growing sorts. This crowding of the roots is quite an important matter when a number of plants are kept over from one season to another.

During the winter, if the heat of the room is not sufficient to insure a vigorous growth, very little water should be applied; and, as a rule, there is more danger of giving too much than too little, when the plants are not growing freely. In spring the plants may be planted out in masses, or repotted in fresh soil, and then given a warm, sunny position indoors or out, and then freely watered.

Showy Species and Varieties.

Maculata, or, as known in some florists' catalogues, *Argyrostigma*, is a tall-growing species, with broad, green leaves, studded with silvery spots.

Zebrina.—This is another rather tall-growing species; leaves dark green above and deep purplish red underneath; the midribs and veins a light pink. A very showy plant, and appropriately named.

Semperflorens rubra.—This has small leaves and bright red flowers.

Weltoniensis.—Similar in habit to the last; the flowers of a waxy pink color, blooming freely in winter.

Among the large-leaved low-growing sorts it is difficult to pick out the best where there are so many that are really desirable. *Begonia Rex*, *Roi Leopold*, *Silver Queen*, *Mme. Wagner*, *magnifica*, *Royleana* and *Nebulosa* are all good, either for window culture or bedding out in summer.

All the species and varieties are readily propagated from cuttings of the leaves, placed in sand under a bell glass, or in almost any warm room. Only a small section of a leaf is required for a cutting.

Vines for the Window.

THE most satisfactory vine yet recommended by florists for the window, is the *Cobœa scandens*—yet we have seldom seen it used; and we notice with pleasure some excellent recommendations in its favor by a correspondent of *The Country Gentleman:*

"The idea seems to have taken root that it will not bear the variable temperature of the sitting-room, heated by a stove and repeatedly cooled off by open doors. I am not able to find any runner but the ivy that will stand such drawbacks better. Give the *Cobœa* plenty of liquid manure, sunshine, and room for both roots and vine and it will do well under very unfavorable circumstances. For rapid growth and constant bloom it is hard to

exceed. The seeds are hard to start in an open border, and do much better when they can have the advantage of bottom heat; hence it will usually be found most satisfactory to propagate from layers or cuttings, or go to the professional florist for plants. Nevertheless, seed planted in an open border in September and forgotten often produces fine plants for winter use.

"I would, in this connection, like to speak a good word for my old friends, the Tropœolums. 'Tis true they are 'common,' 'coarse,' and 'old-fashioned;' but among more fashionable kinds they lose much of this, and, if we could only forget that they were nasturtions, we would like them in spite of all.

"No doubt many of your readers will hold up their hands in horror if I even name the Convolvulus family among vines for the window; and yet those who can see a proper selection of them well arranged cannot deny that they add a charm peculiar to themselves. The objection to this family is often caused by a want of knowledge of the newer varieties. *C. tricolor* is fine when in contrast with other blooms; and the little delicate blossoms of *C. mauritanicus* are quite as charming as many more common competitors. The *Ipomœa* family has many admirers, and, with good specimens of the *I. coccinea* before our view, it is not difficult to account for the fondness. The *I. Quamoclit* is perhaps too common to please many; but among other vines, it, like the *C. tricolor*, lends a charm by comparison. Of the *Maurandia Barclayana, Thunbergia* and Ivy, it is needless for me to say much; they are well known, but, to my mind, 'too common.' With the *Clerodendron Balfouri* I have no luck, and would discard it from the window as being better suited to the fixed temperature of the greenhouse.

"A specimen of the *Passiflora* family must not be omitted. For bloom the *P. cærulea* will probably suit best, but for effect I would take *P. trifasciata*, which owes its effect mainly to its tricolored foliage. Give plenty of sunshine and not *too much* water. Many fine plants are injured by too free use of moisture around the roots."

Floral Arrangement.—To arrange flowers artistically, as well as naturally, is a gift which very few have. Suggestions are always in order, and the following from the *Boston Transcript* seems to be an excellent idea:

"Flowers may easily be arranged on a round or oval table to present the appearance of an immense bouquet or pyramid heap, covering the whole table, in the following manner:

"In the center of the table place a large vase on a strawberry box or some convenient support that will raise it a little above the table. About this arrange glasses in a circle at regular distances, from twelve to twenty being requisite, according to the size of the table. The wide-mouthed bottles in which horseradish comes from the grocers are very nice for this purpose. Place quite a large pyramidal bouquet in the middle vase, and in each of the glasses place a face bouquet, whose size must depend on the distance between the glass and the bouquet in the vase. When a bouquet has been placed in each glass, strew fresh ferns around the edge of the table to conceal the glasses, or arrange English ivy about them. The ivy may come from a pot in the rear if the table is to stand against a wall. A very fine effect may be produced in this way, nor will so many flowers be necessary as might be imagined from the description. As the stems of all the flowers may be in water, they may be kept bright and fresh several days. If the ferns are used as a base or border—and they make the loveliest border imaginable—of course it will be necessary to renew them every morning. For floral decorations in churches, at fairs, or for parties at home, no arrangement of flowers so simple will make a better display; and as the glasses and vase are entirely hidden from view, not one person in a hundred will be able to imagine how the fragrant pyramidal heap is made up."

Make Home Beautiful.—I have seen very pretty transparencies made by stitching ferns and gay clusters of leaves between sheer folds of lace, and fastening the whole, or rather surrounding it, by a slender frame made of cigar lighters. Any long vine which you

have been so fortunate as to have succeeded in pressing will loop itself gracefully over your pictures or brackets. Ivy, the stems inserted into flat bottles of water, and the bottles tied to the backs of picture frames, can be trained to grow around pictures with very fine effect. In a warm, moist atmosphere, the ivy vine grows rapidly, either in pots or in vases of water, and its verdure is a real decoration to indoor life in the winter. The gray trailing moss of the south, weird and phantom-like, or the fluffy, feathery flower of the clematis, are graceful for drapery in their exquisite and airy lightness and apparent fragility. Nothing is prettier than the bitter-sweet. Its delicate coral cups break open, revealing an inner ball smooth as wax and tinted with gold. With clusters of this, or holly berries shining out from glossy leaves, or the running cedar that may be had in the forests for the seeking, home may be decorated to your heart's content. Then if it have heart's content too—the cheer of simple unaffected living, the warmth of good humor, the tenderness of courtesy, and the grace of thankfulness—be it never so lowly, there will be no place like home.—*M. E. S.*

Maize as a Window or Balcony Plant.—Maize or Indian Corn has (says *The Garden*) much to recommend it to the notice of window gardeners, being easily grown and readily propagated. Its appearance is quite distinct from that of anything else in the way of window plants, and it will make a luxuriant growth even in the most smoky and densely populated parts of London. If sown on a genial hot-bed in February, and potted on in rich, well-manured compost, young plants of it will be strong and vigorous, and ready to place on the balcony or outside the window in May. As a central plant for a hanging basket or rustic stand, maize is equal to a dracæna in grace and beauty of outline, besides being much more hardy. It grows from two to three feet high, and its fresh, green, wavy leaves hang gracefully over the sides of the pots in which it is grown, and do much towards adding variety of outline to the most formal arrangement. There is a variegated variety, the foliage of which is profusely striped with creamy white. This is an effective addition to the centres of vases in which bedding geraniums, nasturtiums and lobelias are planted during the summer months.

A Vase of Flowers.—A few days since I arranged a vase of flowers, and as they showed up with rather pretty effect, I will give a few hints as to their grouping. The shape of the stand was the Marchian, with a trumpet rising out of the upper tazza. Round the edge of the bottom tazza were fronds of the Lady and Hart's-tongue ferns interspersed. These two kinds for this purpose blend well; being of two different shades of green, one sets the other off to advantage. The dish was filled in with pink asters, blooms of white Lilium lancifolium, blue agapanthus and sprays of wild clematis in bud; also some of the silver-like branchlets of the same, the bloom of which was over. Through the whole were lightly intermixed a few fronds of Maidenhair fern. The glass stem which supported the upper tazza was clothed with a spray of variegated ivy. In the tazza were blooms of pink Lilium lancifolium, buds of agapanthus and clematis, with the addition of Maidenhair fern, the whole being surmounted with a plume of grasses, ferns and light sprays of some of the flowers used in other parts of the stand.—*Cor. Gardener's Record.*

Odontoglossum maxillare.—A new plant, originating with Rev. J. B. Norman, Edgware, England. Received a first-class certificate from the Royal Horticultural Society. Has a white lip with yellow base; the petals and sepals also white, blotched at the base with brown. It is of dwarf habit, and is pronounced an acquisition.

Floral Design.—A very pleasing effect is produced by staking out four rows. Commence the first row by planting about two feet of white crocus, followed with two feet of purple, then two feet more of yellow, and finally two feet of the striped variety; now plant the second row, beginning with purple, then yellow, striped and white; the third commencing with yellow, and the fourth with striped crocus. Such a bed is very handsome, indeed.

Editor's Portfolio.

Chinese Flower Garden.

The illustration, given in our frontispiece, this month, is a curious scene of ornamental gardening, in the grounds of the Villa Pallavicini, at Genoa, Italy. Of the beauty of these grounds, a traveler writes to *The Gardener's Chronicle* as follows: "They are extensive and beautifully disposed; they command superb views; they constitute one of the show-places around Genoa; access to them is readily obtained, and a large staff of gardeners is employed in acting as guides to the visitors. Advantage has been taken of a wide ravine, on one side of which the garden has been formed, with winding walks ascending the slope of the mountain, embowered in shade-giving trees and rendered musical by the rippling of a falling streamlet. A few paces from the temple, which is in the midst of a tiny lake, is situated the Chinese bridge. Here the traveler lands from his adventurous journey, but as he sets foot on shore, he is assailed by jets of water from the bridge. Naturally alarmed, he seeks safety in flight, only to be met in the middle by a more formidable foe. Resistance and flight alike hopeless, he surrenders himself a prisoner. The fight ceases. The visitor seeks repose and tranquillity; he seats himself in the swinging seat. Alas! vain hope, again the tyrant water streams in his face; he shifts his position only to encounter another jet in another direction, and so on. All this is amusing, but may seem out of place. The site of the garden is one of the best, with natural rocks and hills in full view on the one side, and a lovely view of the Mediterranean and of Genoa on the other."

American Potatoes in England.

An English horticulturist has written te *The Gardeners' Magazine* of his success in raising American potatoes.

"The Extra Early Vermont has proved, with him, 'one of the best.' It is of rapid growth, and quickly yields a supply of fair-sized tubers—in fact three times as many from a given space as any of the Ashleaf family, though in quality it will not 'bear comparison' with the latter.

"The Late Rose is not late, excepting it be in contrast with the Early Rose, as the haulm dies down and the tubers are ripe long before the majority of the English main crop varieties. This year the Late Rose was ready for lifting by the middle of August. It may be considered a very good potato for small gardens, for consumption from August to December. Especially is it desirable on light brashy soils, from which it is well nigh impossible to obtain good crops of Dalmahoys, Victorias, and other high-class kinds. On soils of this description it will be found profitable and of good quality; but on deep holding loams or heavy clays it is not desirable, as the tubers will bear a closer resembance to 'balls of soap' than potatoes; but at its best it lacks the fine quality of the very best English varieties.

"The Vermont and the Rose are the only two for which he would hold up his hand if it were proposed to have all the American sorts swept at once out of existence. He uses this strong language after having compared notes with persons who cultivated potatoes on soil differing very materially in character. 'Not one of those remaining is fit to be grown in an English garden.' Brownell's Beauty, 'one of the high-priced kinds sent out last spring,' and awarded a first-class certificate by the Royal Horticultural Society, instead of being what its name implies, is 'one of the ugliest potatoes he has ever grown,' and, in quality, 'not worth growing.' The tubers have come, with him, in 'all manner of shapes, and most irregular in outline; and although the quality is not absolutely bad, it is not good enough to make amends for its ugliness and light crop.'

"Of other sorts the Climax, though a fair cropper, has too many small ones in a hill, and in quality is 'decidedly second-rate.' Compton's Surprise is a fair cropper, and eatable; but so irregular are the tubers that it is a work of great difficulty to peel them without wasting one-third of the bulk. They are rather long,

and when laid out separately 'the surface is so regularly undulated as to represent the swell of the sea on a rather windy day;' and it is remarked that if Americans expect Englishmen to grow this kind they ought to send over an ingenious machine with which to remove the skin. Peerless, Prolific, King of the Earlies, Peachblow, Excelsior, Willard's Kidney and Early Goodrich, are so inferior, taken as a whole, as to be undeserving of a place in an English garden. Of the newest, the Snowflake, he says nothing, as he has not grown it and it is not likely, he declares, to be added to his collection till the price falls very materially. To pay extravagant rates for American potatoes is, he feels sure, 'a waste of money;' and he is also convinced that if England never receives another variety from across the Atlantic 'she will not take any harm.' In fact, with the exception of the two varieties first mentioned, she would be better off without those already on hand; 'as they now take the place of more meritorious kinds.'"

The writer of this article must have had either an intense prejudice, or poor soil, or unfavorable weather; for we notice that the remarks of contributors to the gardening journals have uniformly been very favorable in feeling and expression to the American varieties, except, perhaps, the Early Rose, which is often very unsuccessful.

Ornaments for the Sitting-room.

I took a common glass tumbler and covered it with moss, leaving it uncovered at each end, and fastened it in its place by a piece of sewing-cotton tied around both ends. The moss covered the threads, and it did not mar its beauty in the least. I next got a saucer and covered it with dried moss, glued on. In this I set the tumbler, filling it and the remaining space in the saucer with loose earth from the woods. I planted the former with a variety of ferns, and the latter with wood violets. On the edge of the grass I planted some of the nameless little evergreen vine, which bears red (scarlet) berries, and whose dark, glossy, ivy-like foliage, trailing over the fresh blue and white of the violets, had a beautiful effect. My next plan was to fill a rather deep plate with some of the nameless, but beautiful silvery and light green, and delicate pink mosses which are met with in profusion in all the swamps and marshes. This can be kept fresh and beautiful as long as you do not neglect to water it profusely once a day. It must, of course, be placed in the shade or the moss will blanch and die. In the centre of this I placed a clump of large azure violets, whose beautiful foliage I esteem an ornament within itself, adding some curious lichens and pretty fungous growth from the barks of forest trees, and a few cones, shells, and pebbles, and my ornament was complete. The construction of these and other things of a like nature would be a pleasant diversion for many a careworn housewife, together with a walk to the woods, for the purpose of collecting the materials. They will remain fresh and bright a long while, and as a "thing of beauty is a joy forever," they will be a "lingering pleasure and delight," reminding all who see them of the rare green woods. The many beauties of nature cannot but afford an endless source of enjoyment to every one who has not willfully shut out all the sunlight and joy of their lives, by selfishness and avarice.—*Hawthorn, in Journal of the Farm.*

Profits of Pear Growing.

An instance of what was done on a very few acres of ground is given of a little place of but three acres, planted on the farm of Mr. John Taylor at Elba, N. Y.

"The pears were of the Duchess D'Angouleme variety, and the cost of the trees was $500. We estimate the cost of preparing the ground and setting the trees at $200, making the first cost $700. For the first six years there was no fruit. The seventh year 20 barrels of very fine fruit; three of the barrels being filled with 150 pears each. This crop sold at $10 per barrel—$200. The eighth year 180 barrels of fruit were gathered, which sold at $6 per barrel—$1,080. The ninth year the yield was 220 barrels, which brought $5 per barrel—$1,100. This year, the tenth since planting, the yield was 204 barrels, which sold at $5.50 per barrel—$1,122.

During all these years, potatoes have been grown between the rows of trees, and have paid more than the cost of their cultivation and the expense of the necessary care and culture to the trees. Now let us calculate:

Cost of trees and setting	$700
Interest for ten years	490
Total	$1,190
Income seventh year	$200
" eighth year	1,080
" ninth year	1,100
" tenth year	1,122
Total	$3.502

Three thousand five hundred and two dollars income less eleven hundred, cost, equals $2,402 profit, which is $240.20 per year for three acres—$80.06 per year per acre. If this was *all* it would be most profitable culture; but the orchard has just begun to bear, and the ratio of profit will probably be much greater for several years to come."

Caught this Time.

The *American Agriculturist* is so fond of running a free lance of criticism into all the nooks and crevices of rural journalism (sometimes unnecessarily), often going out of its way to strike a blow, that it must not be surprised, sharp eyes watch it and rejoice when it trips, like all the rest. Probably if it did not habitually plume itself with such extraordinary airs, no one would take the trouble to look for a fault. Probably there is not a journal in the United States over which the whole agricultural editorial fraternity would more gladly smile than the slip of the *A. A.* The *New England Farmer* edifies the public with the following paragraphs, which we quote without comment.

"Several years ago the *American Agriculturist* published, for the amusement and edification of its young readers, engravings of the woodchuck and muskrat, with descriptions of the habits and peculiarities of these well-known animals. We have no copy of the number at hand, and do not recollect distinctly what was said about the muskrat; but the description of the woodchuck made a lasting impression upon our mind, as it was the first time we had ever heard of its being a *nocturnal* animal, or that its habit of *disjointing its own limbs*, when trapped, made it a difficult animal to catch. We watched the succeeding numbers for several months, expecting to see a criticism from some farmer's boy; but if any were sent in or published, they escaped our notice. The subject had nearly passed out of our mind, when, upon opening the November number of the current year, what was our surprise on seeing an illustration of one of these *night-frolicking fellows*, being captured by the teeth with a slip-noose tied to the end of a stick which had been thrust into the burrow.

"There is nothing remarkable about catching woodchucks by the teeth, if one can get them to bite at the string; but this seldom happens, we think, when the 'chuck' is in his hole. These animals will fight bravely when cornered, but they always make good use of their legs in preference, if there is any prospect of reaching their holes by running. Their holes once reached, they do not come out to bite strings with slip-nooses on the end, but scud away to the farthest possible chamber; and they will often dig in light land about as fast as a boy can follow with spade and pick. We have lived over forty years on a grass farm, on which were many old stone walls which afforded excellent protection to these pests. If one happens to be driven into a hole in the wall, where he cannot fully hide from sight, it is a very easy matter to capture him by offering him a bent stick or wire to bite, as the two upper front teeth once over a wire or string, he can't let go as long as one pulls on them. There is a great deal of nonsense written to please children; but we should not have supposed a publication of the standing of the *Agriculturist* would have made its woodchucks frolic in clover fields on moonlight nights, when every farmer's boy knows that, with scarcely an exception, they retire to their burrows before sundown."

The King of Flowers.

We frequently hear of the Rose being the queen of flowers, and the Pine Apple the king

of fruit; but the acknowledged king of flowers, so far, has been unsolved. Our ignorance on this point appears to extend to England; for the editor of the *English Journal of Horticulture* lately answered a correspondent that he could not inform him what plant the king of flowers might be. The query, no doubt, was started by an advertisement in that paper:

"TO GENTLEMEN AND GARDENERS.—Flower seeds from America, of what is there called the king of flowers; very excellent purple and white bloom. The plant grows about three feet high. Excellent for shrubberies or greenhouse. Price 5s. for twenty seeds. Address, etc. etc.

What a tempting offer; twenty seeds of the king of all flowers for the paltry sum of $1.25, or six cents a seed. Giving the buyer these valuable plants, and also the secret of what is the king of flowers at the same time—the information is worth the money. We are also pleased to hear the king of flowers is from this country, in which a king, unless it is from the Sandwich Islands, is a novelty. We pause for further information on the subject, and can only suggest that it looks very like a swindle.

A Cabbage Story.

This story originated in Colorado, a county next to California, celebrated for wonderful things.

"Mr. Taylor of Larimer has harvested this year from 4½ acres 'nigh on to" 40 tons of the melancholy bulb. One load of a summer variety averaged 26 pounds per head. But this is moderate along side of what was done during the early history of the territory, *i. e.*, three years ago. In that primeval time, 'by putting on temporary sideboards two feet high, on top of those of the usual height, Mr. Taylor was enabled to load thirty-nine heads on his farm wagon. The fortieth head was put on but couldn't be made to stay. He drove the load to Cheyenne and endeavored to sell to the proprietor of the Railroad House. This individual, however, wanted but a sackful; but when informed that it would be impossible to get one head in the sack, the landlord desired to see the load. His report soon drew around the wagon a number of eastern men, and in fifteen minutes the load was disposed of at a cent and a half per pound over the market price, and every head was sent to the States as specimens of Colorado's productions. The load weighed over 1,700 pounds, making an average for the thirty-nine heads of forty-six pounds each,'"

Indian Corn in England.

It is really a wonderful thing to be able to raise Indian Corn in England. The fact that a gardener in Lancashire, England, has, during three years past, ripened Indian corn, is considered of consequence enough to be chronicled in the local prints. He started plants in the hot-house and set them in the open air, "by the side of the vinery," when about a foot in hight. They grow there "in a little row," and at latest accounts were from nine to eleven feet high, "each bearing its flowering plume above, and its tasseled ears below. There are two varieties, one yellow and one red."

A Hint to Owners of Fruit Gardens.

A benevolent fruit raiser in Worcester, England, was recently much annoyed by little boys who stole his peaches. He one day saw a minute marauder go up into one of his trees. He was ready for the emergency, for he had provided a large stuffed dog which he placed at the foot of the tree, and then retired a little to watch the effect of his strategy. The little boy having filled his stomach and his pockets with fruit, was about to descend, when his affrighted eye rested upon the animal. First he tried blandishments, viz., whistling, coaxing. Then he tried the sterner dodges, viz., threatening, scolding. All was thrown away upon the stuffed dog, standing sternly there and never moving his stiff tail an inch to the right or the left. The little boy had never a dog like that; and after a while he understood that the peach tree must be his dormitory for the night. The hours dragged wearily on. The stuffed dog looked bigger and bigger in the dark. There was a plenty of peaches, but where was the little boy to find appetite? In the morning the owner appeared and asked the little boy how he happened to be in the tree. Alas! not in the least regenerated by his sufferings, he answered that he had been chased by the dog, and had ascended for safety!

What must have been the emotions of wrath, mortification, and legs' ache which agitated that boy when he discovered the game which had been played upon his juvenile credulity!

The Groves of Morocco.

The Garden says: "The groves of rose trees and the flower farms of Morocco are said by a recent traveler to exceed in extent and value those of Damascus, or even of those of the Valley of Mexico. The general climate of the country is very favorable to this kind of culture. Swept alternately by the breezes of the Atlantic and the Mediterranean, and tempered by the snows of the Atlas ranges, the degree of heat in Morocco is much lower than in Algeria, while the soil is exceedingly fertile. To the date palm and to orange and lemon trees the climate seems to be especially suited, the dates of Tafilat having been famous even from Roman times. The orange plantations are of great extent in various parts of the country, while olives and almonds are also staples exported in large quantities. Seeing that this fertile land, lying within five days' steam of London, produces so much vegetable wealth under the most barbarous cultivation, it appears extraordinary that European enterprise does not, in such a climate, seek profitable employment for its overabundant capital in its application to the development of such vast resources, so close at hand, instead of going so far afield as Australia or America."

Peas Three Thousand Years Old.

In the course of late explorations in the ancient ruins of Egypt, General Anderson, an English traveler, found, inclosed in a sarcophagus beside a mummy, a few dry peas, which he preserved carefully, and, on his return to Great Britain, planted in the rich soil of the Island of Guernsey. The seeds germinated, and soon two little plants appeared, from which, at maturity, sufficient peas were gathered to plant quite a large tract of ground in the following season.

Some of the plants thus raised have attained a height of over six feet, and have been loaded with blossoms of exquisite odor, and of a delicate rose tint. The peculiar feature of the growth is the stem, which is small near the root, but increases greatly in size as it ascends, requiring a support to sustain it upright. The pods, instead of being distributed around all portions of the stem, as in the ordinary plant, are grouped about the upper extremity.

The vegetable, it is said, belongs to the ordinary garden variety; but from its presenting the very distinctive differences above noted, it seems worthy of close botanical examination. The peas are of remarkably fine flavor, excelling in delicacy those of the choicest known varieties.—*Scientific American.*

Victoria's Gardens.

Colonel Forney writes to the *Philadelphia Press:* "The royal gardens near Frogmore are thirty acres in extent, and inclosed within a wall twelve feet in height. It is a magnificent spot, with its grand collection of plants and flowers. There are two splendid apartments for the use of the queen, out of which she proceeds to the conservatories, which cover a total range of glass of 920 feet. There is a vinery 102 feet long, two peach-houses 56 feet long, and pits for forcing melons, cucumbers, and asparagus, heated with hot water. These gardens are considered to be the completest of any on earth, and are surrounded with 1,800 acres of magnificent scenery, and stocked with several thousand fallow deer. 'Yonder,' said our guide, 'is the Long Walk, nearly three miles in extent, shaded all the way by a double row of ancient elms—a delightful promenade. It was planted in the year 1860, and among its other advantages is a saline spring, of great effect in chronic diseases. In the south-eastern direction you will perceive a lodge, which was for a long time the residence of George IV. It was taken down by command of that king, with the exception of the gothic dining-hall, where at present occasional royal fetes are held. At the back of the lodge you will see a large building called Cumberland Lodge, formerly the seat of William, Duke of Cumberland, uncle to George IV. The queen's hunters are kept in the adjoining premises. Near Cumberland Lodge are the schools, finished in 1845 by the queen, for the education of the children of the

employees on the royal domain. There, on the other side of Cumberland Lodge, is the broad approach to the celebrated lake called Virginia Water, of which you have heard so much, surrounded by a succession of delightful views, increased by artificial aid. It is about seven miles in circumference, one mile and a half in length, and in width one-third of a mile, and is one of the largest artificial sheets of water in England."

Violet Flowers.

Flowers of a violet color when exposed to the fumes of a cigar assume a green tint, all the more decided in proportion to their original brightness. This is well exemplified in the case of the violet Thlaspi, or *Iberis umbellatta*, and of the Julienne, or *Hesperis matronalis*. The alteration is due to the ammonia of the tobacco. Starting from this point the Italian Professor, L. Gabba, has—as we learn from *The Journal* of the French Central Society of Horticulture—made a series of experiments in order to determine the effect of ammonia on the colors of various plants. Pouring a little ammonia into a plate, and placing a funnel over it, the professor inserts the flower in the tube of the latter. In this way blue, violet, and purple flowers become of a fine green color; deep carmine-colored flowers, such as pinks, become black; white blossoms yellow, and so on; but the most curious effects are produced on parti-colored flowers, such as red and white, when the former color is changed to green and the latter becomes yellow. Another remarkable example was that of the Fuchsias with white and red flowers, which became yellow, blue, and green. When the colors have been thus changed, if the blossom be dipped in pure water it will retain the artificial color for several hours, and will afterward return gradually to its natural tint. Another curious observation of Prof. Gabba is that Asters, which are naturally without scent, acquire an aromatic odor under the influence of ammonia. The same flowers of a violet color become red when sprinkled with water containing nitric acid; and if inclosed in a wooden box, and exposed to the action of hydrochloric acid gas, will in six hours become of a fine carmine color, which they will preserve if first dried in a dark place and kept dry in the shade.

To Make a Salad Worthy of a Man of Taste.

Two boiled Potatoes, strained through kitchen sieve,
Softness and smoothness to the salad give;
Of mordant mustard take a single spoon,—
Distrust the condiment that bites too soon,—
Yet deem it not, thou Man of taste, a fault,
To add a double quantity of salt.
Four times the spoon with oil of Lucca crown,
And twice with vinegar—procured from town!
True taste requires it, and your Poet begs,
The pounded yellow of two well-boiled eggs;
Let Onions, atoms lurk within the bowl,
And, scarce suspected, animate the whole;
And, lastly, in the flavored compound toss,
A magic spoonful of Anchovy Sauce,
Oh, great and glorious! Oh, herbaceous meat!
'Twould tempt the dying anchorite to eat;
Back to the world he'd turn his weary soul,
And dip his finger in the Salad bowl.

—*Ascribed to the Rev. Sydney Smith.*

A New Plant.

The *Jaborandi* is the name of a Brazilian plant, which, it is said, has lately been found to be the most powerful known sudorific. It is stated that the medicine therefrom is effective against even rabies.

A Fungus Exhibition.

A very curious exhibition, no less an one than that of specimens of fungoid growth, was held in October, at Munich. It proved a great success. Although open but eight days, yet over 40,000 persons visited it.

Vegetation in the Frigid Regions.

Mr. Adolphe Ermen, when in Siberia, only eighty-four miles from the arctic circle, found not only the larch, pine, and birch fine and vigorous, but also turnips, blackberries, roses and some garden vegetables fine and vigorous.

T. C. Maxwell & Brothers.

The advertisement of T. C. Maxwell & Brothers, Geneva, N. Y., appears in our columns, and deserves attention. They are reliable men, and have a large stock of the best of Trees, Plants, etc. It will pay you to correspond with them.

Wanted.

The address of every florist, gardener, or owner of a greenhouse in the United States. Would be pleased to have any one favor us with their cards, or list of names, to whom we can send specimen copies of THE HORTICULTURIST.

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Will be Ready in January.

IT WILL CONTAIN DESCRIPTIONS OF FINE

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In great variety, including, also, an admirable assortment of new and beautiful

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Plants for Baskets, for Ferneries, for the Window and the Conservatory, Plants for Ribbon Beds and Borders.

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Send for circular,

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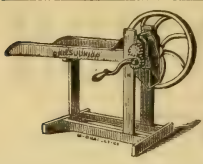
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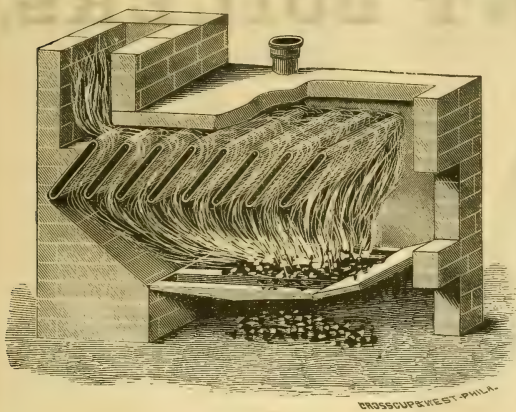


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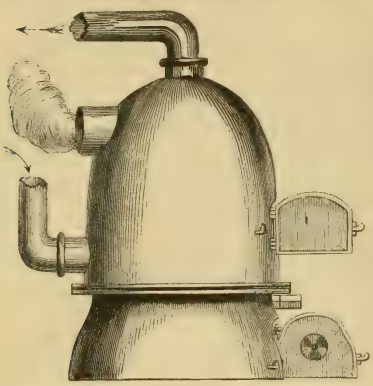


Fig. 1

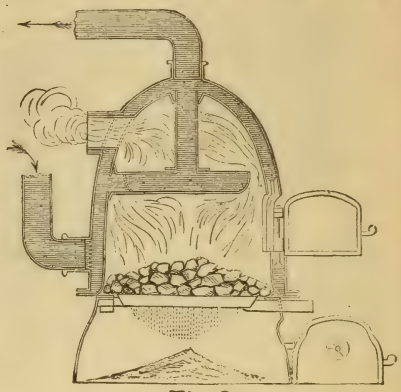


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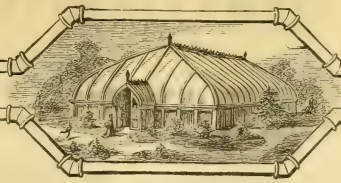
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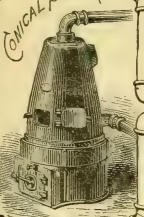
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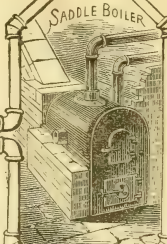
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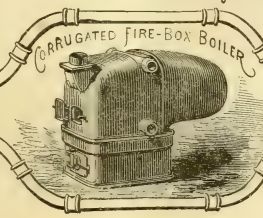
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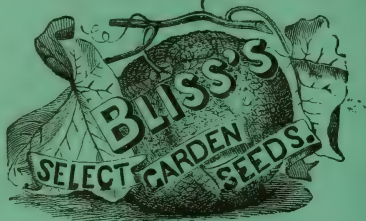
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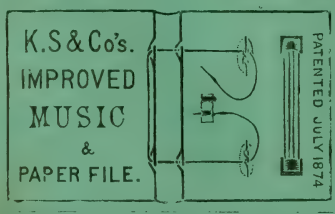
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[*Welbia Regia.*]

THE HORTICULTURIST

EDITED BY

HENRY T. WILLIAMS.

E. SEARS, SC.

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The Greenhouse.

Greenhouse for March.

THIS is one of the most busy months in the year in this department; potting and propagating the general stock of plants for the next autumn and winter require attention at this season; also propagating and preparing plants of all kinds for the summer decoration of the flower garden and pleasure ground. There being usually a scarcity of house room at this season, do not occupy space with plants not required, such for example as plants which naturally make a large quantity of cuttings. It would be ridiculous to propagate them by the hundred when a dozen would be enough for all contingencies. It is pleasant, after obtaining novelties, to have a few extra plants for giving or exchanging with friends; and some of our friends try to pay some of the expense incurred in buying novelties, by growing a few extras for sale. But unless those extras are specialties, which, from high price or difficulty of growing and propagating the plants, are in few hands, it seldom pays for the trouble, and is best left in the hands of the trade, it being a very out-of-the-way place indeed which does not contain at least one humble dealer.

Gloxinias and Achimenes must be moistened and started to grow. Those already commencing to grow must be shaken out and repotted into smaller pots. The Achimenes grow best in a lighter soil than the Gloxinias. Neither require much water until they are growing freely. It is best to pick out the scaly roots of the Achimenes from the old soil, and place them in pans or boxes quite thick; it is then easy to transfer the plants, when a few inches high, to baskets or pots, as required. The Gloxinias are best started in the old soil, and shaken out after growth has commenced.

Caladiums must be now turned out of the old soil, if not already done, and potted into smaller pots. We did not observe any improvements among the new varieties of last year; in fact, in some varieties it is difficult to make any change without detracting from the beauty in some way. We have noticed

one strange fact: the new varieties remain at a high price much longer in Europe than in this country, and the prices of the older varieties rule much higher there than here. But the same may be said of Tea Roses, which are usually double the price in England that the plants can be purchased for in this country.

Primula Japonica and involucrata will now be in flower, and require abundance of water, or the plants become smothered with red spider. Probably Japonica was overpraised by European writers when first introduced, but we consider it a very useful decorative plant, both for greenhouse and also as a window plant. Involucrata is desirable for its delicate perfume. Both being of easy culture and almost hardy, are worthy of a place in every collection of plants.

Lilium longiflorum and candidum will require more heat than usual if required in flower at Easter, this year Easter being very early. Keep a lookout for green fly, which are very fond of these plants, especially if grown in extra heat. It is difficult to destroy these vermin with tobacco smoke on these plants, because they usually get down into the hearts of the shoots, and are secure from the effects of smoke. It is best to make some strong tobacco water and dip the shoots; this, if carefully done, is a sure cure.

Lilium, of the auratum and speciosum type, will now be growing freely in pots, and will require more water and plenty of ventilation. These plants grow best in a light position, just protected from frost; but if required to bloom very early, extra heat will produce that result. But the plants will be more or less spindling, according to the light and ventilation received. Look out for green fly, and use remedy as recommended for the white varieties.

Lapageria rosea and alba.—Now is a good time to plant out strong plants of this beautiful climber. The rosea and alba planted together make a charming contrast, and look much more beautiful than either separate. But the white is very scarce and dear, and will always be scarce in comparison to the rosea, for the reason that the only satisfactory plan of increasing these plants is from seed, and the white variety does not come true from seed; so that if any one is persuaded to buy cheap seedling plants of alba, it will prove rosea when it flowers. These plants are of the easiest culture if planted out in a cool house. A camellia house with a north aspect is best, or the north end of a greenhouse which is shaded in the summer. The main consideration is good drainage; for although the plant requires abundance of water at all seasons, stagnant water is fatal to its growth. We place a good layer of broken bricks at the bottom, and then fill in with whole turfs of our tough orchid peat placed on edge, and the crevices filled in with the same sort of peat broken up, with the plant made as firm as possible, and the surface finished off with some fine peat to prevent snails harboring, these pests being very fond of the young succulent shoots. A little lime dusted over the surface occasionally will act as a preventive; but after each watering it requires renewing, so that it is best to keep a few slices of potatoes or cabbage leaves laying round the plant, to be examined occasionally, and the vermin killed. In the summer there need be no fear in giving a good watering each day.

Thunbergia Harrisii will be now in full flower. This plant does not require a strong heat, but grows and flowers best at the shaded end of a house which is kept about 50° at night during the winter months. In bright sun and more heat the flowers are pale, and do not last so long. A few plants of this grown in four-inch pots, and the long growth pinched in, will flower nicely and look pretty among other flowering plants.

Eucharis flowers will come in very useful for Easter, so that plants now showing flowers must not be disturbed until after they are gone out of bloom. If top dressing was not done after the last blooming, it had best not be neglected as soon as this flowering is over, for the plants suffer if the roots are much interfered with. After hot weather and bright sun commences, the plants will require more water than has been given during the last few months, and a slight shade from bright sun.

Palms.—Large specimens requiring larger pots or tubs must be attended to at once. See the mass of roots is well soaked with water previous to moving, for it will be next to impossible to get them moist when surrounded with fresh soil, a good loam, packed firm round the roots, with good drainage, to allow abundance of water. Do not fill pots or tubs too full of soil. There should be from one to three inches of space left on the top, according to size; and leave the soil round the rim of the pot higher than at the stem, in fact to form a shallow basin, both for allowing the new soil to sink, and also to turn the water into the ball of roots.

Carludovica.—We notice this fine genus of palm-like plants are beginning to claim attention in Europe. Probably their scarcity previously has prevented these splendid plants being grown to any extent; but now plants can be obtained at a comparatively moderate price. They will be grown for decoration generally, especially for dark, warm conservatories, and as undergrowth to late palms. All the species being of moderate growth, will make them more acceptable to people with moderate-sized houses. Although these plants are in reality related to the Pandanus, they so closely resemble palms in general appearance, that they are generally classed with palms. The difference is at once seen when the plants flower, which established plants do freely. The flower does not last long, and is more curious than beautiful. *Atrovisene* and *microcephala* are the varieties most frequently seen. Both are handsome, being a very deep green, and the leaves look as if plaited. These have a pair of leaflets on each stalk, and the latter variety is much dwarfer than the first, although this does not grow more than four feet in height. *Humilis* and *acaulis* are the handsomest we have seen, and promise to grow taller than the others. These species have palm-like leaves, which are very distinct; but these species are likely to be scarce and dear for some time, for they are slow to increase. We grow these plants in three parts peat to one of loam; the plants are a much better color than when grown in all loam. They require abundance of water at all times, and shade from bright sun, with a temperature of about 60° in the winter, and a high temperature in the summer. The fibre of one or more species in this genus is employed for making the well known Panama hats.

Marantas must now be repotted or divided, if necessary, using about two parts peat and one loam, with plenty of sand and a little chopped spagnum moss, if possible. A little bottom heat is good when fresh potted. We have seen no new marantas which we thought worth growing during the last year or two. The collectors appear to have picked up all the best first, and now add new varieties only as novelties, without any regard as to quality. These plants require a brisk heat and shade from bright sun, and abundance of water when in full growth.

Camellias.—Attend to former directions, and when the plants have finished blooming, keep them a little more close and warm, with a good syringing each bright day. See the plants are not dry at the roots. If the house is very light, a slight shade will be necessary to prevent the sun burning the young growth.

Azaleas which have finished blooming must be placed in a good, light, warm place to induce free growth. All the seed pods should be picked off at once, and the plants receive good syringing each day, with good, careful watering at the roots when in free growth. If the plants are much pot-bound, an occasional watering with weak guano water will be of service to induce a strong, vigorous growth. When the plants have started well into growth, is a good time to give larger pots, if necessary. If any of the roots are dry when turned out of the pots, give them a good soaking in a tub of water before repotting. For large plants we use half peat and half loam, with plenty of white sand; for young plants we use more peat and less loam. In all cases ram the soil as firm as possible. This is especially necessary in fine-rooted plants like the azaleas.

Ferns and Selaginellas.—The remainder of the stock of these plants not already potted and top-dressed, must be seen to at

once. The plants often suffer much if disturbed late in the season. Many of the larger specimens will stand without repotting for a long time if properly done at first, and care is taken to prevent worms entering the pots. These plants must not be exposed to bright sun after this time, and if much pot-bound—which large plants are sure to become, even in one year—will require abundance of water. At no time is drought at the roots sooner visible than when the young growth is coming up; the fronds come small and deformed. Many species of ferns, such as Woodwardias, Gleichenias, Dicksonias and Alsophyllas, are much better grown in a cool house, such as a camellia house, for if grown in heat, they soon become infested with thrip; and as the young growth will not stand fumigating, it is difficult to destroy, and will spread to all the other plants. Now is a good time to fill baskets with such ferns as polypodiums, oleanders, davallias and such free-growing, graceful species.

Orchids.—Many of the finest and most showy varieties will be in flower at this time, such as Dendrobium nobile, pulchellum, Pierardii in variety, the lovely crassinoda and infundibulum; also Cælogyne cristata, which growers generally do not appear to flower so well in this country as in Europe; the wonderful Angræcum sesquipedale, with its extraordinary long waxy tails. And if the Lælia anceps have been kept cool, they will still be in flower, with perhaps a few late spikes on Lælia superbiens, the orange scarlet Lælia cinnabarina, Oncidium Cavendishii, Amplicatum major, and many of the Wallichii varieties.

Brassavola glauca.—The handsomest of this genus will also be in flower, with a number of cypripediums and Lycaste Skinnerii. A good batch of these last is very useful, there being so many varieties, both in size and color; but these plants require plenty of air, and to be grown in a cool place in the summer. Many species commence to make a fresh growth even before the flower is past. When the plants have started fairly is the best time to repot or top-dress those plants which require it. Most of the dendrobiums flower on the old wood, but the fine basket species, named Cambridgeanum, flowers at this season on the young growth made since the new year. These plants will require more moisture, and also slight shade, especially the East Indian species.

Cyclamens will now be in full flower, and will require more water, with plenty of air and shade from bright sun. Select and mark the best varieties for saving seed, if seed is required.

Violets in frames must have plenty of air, with the lights drawn off on fine days, when the wind is not very cold. Take advantage of a mild term to give the plants a good soaking of water, for there is not often a chance to do so through the winter, and the soil usually becomes dry by this time.

Roses and other plants protected with hay, straw, etc., can have the covering removed, according to the weather, by the end of the month, as far north as New York; but it will be best on a short time more north of there.

Propagating must be now pushed forward, both for obtaining well established plants for bedding out, and also such plants as poinsettias, eranthemums, begonias, thyrsacanthus, bouvardias, and other plants which it is desirable to increase. All soft-wooded plants are better grown but one year, and then cuttings struck and the old plants put on the rubbish heap.

Examine the stores of canna and dahlia roots. Some varieties are probably not keeping so well as might be wished. These can be potted and put in a little heat, which may save the variety alive; and if left to chance until required, would probably have decayed. It is not improbable that the very severe frost has also found a weak spot in the cellar or other store, and made destruction, an early idea of which may lead to other preparations, or steps be taken to replace the deaths.

White Ants.

BY J. STAUFFER.

A SPECIES of termites are producing great mischief among green growing plants in my neighbor's hot-house. Fitch says

we have but one species of white ants in the United States, named by Mr. Haldiman *Termes frontalis*—the American White Ant. These are known to mine and consume the interior of fence posts, etc., and some are found in old houses in the city. Fitch tells us it is the only species we have in the United States. Harris, in his work, does not mention them, nor have I been able to find any notice of having been detected on succulent vegetation, except that in Southern Europe some species have proved destructive to the fig trees. Käller mentions a species he named *Termes flavipes*, and which he found in the hot-house of the imperial palace at Schönbrunn, where they were no doubt introduced with foreign plants. This species, however, did no injury to living plants, but confined its ravages to the tubs in which they stand, etc.

With regard to the white ants of Africa, called the Warrior Termites—*Termes bellicosus* (and *T. fatalis*, Lin.), Mr. Smeathman's interesting history can be found in nearly all works on natural history, as well as that of other writers; but not a word as to habits like those, except their mining ingenuity or engineering and getting under cover to approach the object aimed at.

Mr. George Hensel, a practical florist, had some fine pelargoniums and geraniums on a broad shelf covered with fine sand and loam, upon which the pots were set; also an empty inverted pot, with another on top, in which was a fine broad-leaved echeveria. These for some cause gave signs of disease, not discovered until on examination they were found hollowed out from the root upwards, by a species of white ants. Mr. Hensel called my attention to the diminutive creatures. We traced their channels, excavated under the sand on the board, radiating from various points directly to the centre of the pot, where they entered and commenced excavating the roots up to the stem, leaving nothing remain but the epidermis of the plant, and in some a portion of the central tissues, so any attempt to handle the plants caused them to break off around the collar or stem at various points.

But to show the wonderful instinct of these creatures, that seem to avoid traveling exposed to view, being also destitute of eyes, but provided with exceedingly large heads. The sappers and miners have large, round heads, with short, flat and toothed jaws; the soldiers have gigantic, oblong heads, long, projecting jaws, abruptly hooked at the ends. In this respect (in the shape of the jaws) they differ from those illustrated by Westwood (vol. 2 of his extensive work, p. 12); otherwise they agree in living in communities composed of three, or, as Latrielle says, some of five different individualities, viz., males, females, neuters, pupæ and larvæ.

These covered inroads were made and tunnelled in a direct line to the opening in the centre of the bottom of the pot, radiating from various points, with a skill truly remarkable. But I was more astonished to see them construct a tube of sand agglutinated together, from the upper shelf to the ground floor, in which they passed back and forth; also to the inside of the inverted flower pot, against and up the sides of which they built their tube, to within three inches of the top (bottom of the inverted pot). From this point they inclined inwards to the central opening, combining four or five of these tubes, and through them entered the pot set upon it, having the echeveria plant in vigorous growth in it. This they mined effectually from the root upwards. Mr. Hensel lost quite a number of choice plants by their depredations. Nothing of the kind ever came to my knowledge, and it is proper that this new assailant should be made known. They are worse, if possible, than the cabbage butterfly or potato beetle, and require looking after. I am now engaged in completing my microscopical drawings and history of this pest. Should any of your readers have had similar experience, it is desirable that their history should be made known.

Lancaster, Pa.

Adiantum gracillimum.—Plants of this most charming novelty have recently been introduced to the notice of English florists, no less a price than $5 being charged for it. It

is described as being of surpassing excellence for decorative purposes, and a beautiful contrast to the now well known *A. Farleyense*. The extreme minuteness and durability of its fronds will make it popular with bouquet makers, and it is said to retain its beauty, when cut, for a much longer period than the old *A. cuneatum*. Thomas Moore says of it:

"The genus Adiantum has probably contributed more beautiful plants to our fern-houses than any other belonging to the order, and the species now offered for the first time is a sufficient proof that its stores of beauty are not yet exhausted. In the well known *A. Farleyense* we have a massive grandeur, found in no other species, and in *A. gracillimum* we have the most elegant and graceful form yet introduced, so that wherever these plants are grown, these two extreme forms will assuredly become great favorites. The fronds are about a foot long, and from eight to nine inches across. The texture of the frond is very thin and fragile, and its color is a very pale yellowish-tinted olive-green. Its light and graceful fronds will render it simply invaluable to the bouquetist, while its hardiness will commend it to all fern-growers for decorative purposes."

Cockroaches in Plant-houses.—A very simple and effectual remedy is given in the *Revue Horticole*, communicated by M. Loury, chief propagator at the Jardin Fleuriste, Paris. It is as follows: Dissolve the heads of a box of phosphor matches in a pint and a half of water; then mix with it about one pound of flour and about one-half pound of sugar, of which these insects are very fond. The mixture may then be distributed in various parts of the house over night, on pieces of board, slates, etc., and when examined in the morning, numbers of dead cockroaches will be found close to where the poison has been laid.

Habrothamnus elegans argentea.—One of the most beautifully variegated greenhouse plants ever offered. It may be grown as an ornamental shrub, or used for covering a wall or pillar in the greenhouse or conservatory. In the latter situation it is especially ornamental. The leaves are alternate, entire, oblong-lanceolate in shape, and acuminate, about six inches in length by one inch in breadth. Nearly the whole of the surface is soft, creamy white, beautifully tinged with rose and relieved by blotches of light green. The flowers are produced in dense racemes, tubular, about an inch in length, and deep reddish purple in color, affording a splendid contrast to the delicate white in the foliage. It has been exhibited in London at the Royal Horticultural Society, and was awarded a first-class certificate.—*B. S. Williams.*

Tropæolum elegans.—This excellent variety of tropæolum is a most useful and ornamental climber for covering the roof of a conservatory or greenhouse. Last year, at this time, or perhaps a little earlier in the season, I procured some rooted cuttings of this tropæolum, and had them potted in six-inch pots. A stake of eighteen inches in length was fixed to each plant, and they were grown on in a cool pit until the beginning of July, when they were planted out in the border of a camellia house, and trained up some pillars, and over the roof. During the winter they kept growing and flowering profusely, and the large quantities of brilliant scarlet flowers they produced proved a welcome addition to our stock of cut flowers at that dull season. Just now the plants are one sheet of bloom, and in a short time will cover that portion of the roof which we intend devoting to them.—*W. Q., in Gardener's Record.*

Spiræas for Forcing.—The Covent Garden florists find *Spiræa japonica* decidedly the best of all the spiræas for forcing, and also one of the most beautiful of pot plants. *S. fili-pendula* has been tried, but although it produces pretty white flowers, they are useless when cut, as they do not last any time. *S. palmata* has the same fault, and moreover does not force well.

A Huge Rose.—In a florist's garden at Nice, France, there was gathered this year a flower of Gloire de Dijon rose, which measured 5½ inches in diameter and 16½ inches in circumference.

Garden Gossip.

Suggestive Notes.

Fine for Vases.—Almost every one who is fond of flowers, is acquainted with the old-fashioned *Agapanthus umbellatus*, but it is not every one who knows just how to grow it; mainly for the reason, that insufficient room is allowed for the roots, and water is withheld too long.

As usually seen, it is grown in large tubs or pots of no especial beauty, when it might just as well be planted in a handsome ornamental vase, with its long, attractive foliage drooping over the sides; and then, when in bloom, the tall stems, surmounted by round heads of deep blue flowers, impart an unusual air of fitness to its surroundings. Water during the growing season must be freely given, and a little old rotted manure placed upon the surface of the soil, will add to its health and beauty.

The white-flowering and the variegated-leaved varieties are, to our eyes, no especial improvement, as they are far less showy than the bright blue color, and deep green tint of the species.

This plant should be divided during the latter part of the summer, after the growth has been perfected, when it is, comparatively, in a season of rest.

Curculio Remedy.—Prof. S. B. Heiges, President of the Pennsylvania Fruit Growers' Society, in his late address before that association, stated that for two years past he had no difficulty in saving his entire crop of plums from the ravages of the curculio. His remedy was simple, but had, nevertheless, proven effectual. It consisted in preparing a solution of old putrid whale-oil soap, and syringing his trees effectually with the preparation, so as to coat every leaf if possible. This was applied frequently, and always just after a shower of rain, commencing when the petals were falling from the blossoms, and ending only when the fruit arrived at the ripening season.

As a proof of its efficacy, he stated that in an adjoining yard to his own, with only the division fence intervening, was a neighbor's plum tree, that had set a full crop of fruit, but that every specimen thereon had been stung by the curculio, and at maturity there was not one left to tell the tale. On the contrary, he could not detect the mark of the insect on any of his own fruit, and they ripened a full crop—indeed the weight of fruit was astonishing. The varieties consisted of all the most popular and delicate kinds known to our pomologists.

We have heard and read of so many recipes of this nature, that at first we felt inclined to think there must be some mistake about this as well; but the well-known character of the gentleman in question, with the photographs of his various kinds attached to branches, aided by the statements of his neighbors, forbid any doubt in regard to the matter. Skeptics, however, have an opportunity of testing his plan, for it is certainly very simple—too easy, in fact, to meet the views of sufferers by the "Little Turk" all over the land.

Conover's Asparagus.—On the principle, somewhat, that rats desert a sinking ship, too many of our horticulturists seem willing, upon the smallest provocation, to turn the cold shoulder towards varieties of fruits, flowers, and vegetables that come under the ban of criticism.

Not long since, the esculent whose name is at the head of this paragraph, was thought to be the very *acme* of perfection; that it was to combine immense size, good quality, productiveness, and every other good quality. Why has this change taken place in the popular opinion? Is it because any of these assertions were false? Not at all; but mainly because it was said that, after all, the character of the variety in question was simply the result of extra fine cultivation, and that its inheritant features were no better than the ordinary kind.

We think differently. Mr. Conover was one of the most successful cultivators of the asparagus in this country. Year after year he saved the seeds from his finest beds, and raised a crop, until, if we believe his state-

ments, the present generation, in a similar manner to other marked varieties of vegetables, it too came true from seed.

There is nothing new in all this. The Champion of England Pea and the Flat Dutch Cabbage reproduce themselves genuinely from seeds; then why not Conover's Colossal Asparagus? That it does so, we have the written statements of more than one careful experimenter in vegetables.

The Future of Succulents.—We are not aware of a single class of plants whose future in this country appears so promising. That they will speedily become very popular, no one who has any idea of their capabilities will for a moment doubt. No matter how dry the situation, or how devoid of moisture the atmosphere, these fleshy-leaved plants flourish with the greatest luxuriance.

They have been thoroughly tested in England, and although, as a general rule, successful, yet the humid atmosphere and frequent showers there, have militated against them somewhat.

We are now about giving them a fair trial in America, and we are going to succeed with them too, thus inaugurating a new era in bedding. The great diversity of form presented by the various members of succulents, enables us to produce the most wonderful effects in gardening: and as for vases and baskets, they are superior to anything else. Take, for instance, a vase: in the center set a fine specimen of *Agave*, then cover the entire surface thickly with some pretty species of *Echeveria*, and around the edges, gracefully drooping down, set the *Othonna crassifolia*, intermingled with the exceedingly handsome *Mesembryanthemum cordifolium variegatum*. For a broad shallow base use nothing but *Echeverias* or *Sempervivums*.

Reliable Peaches. — Pomologists seem very fickle in their list of varieties of peaches; one season recommending one kind, and the next sustaining a new favorite, but yet all the while saying very little about some old varieties that have stood the test of years, and are to-day just as good and as near the top of the list of reliable, paying peaches, as if the scores of newer sorts had never been introduced with glowing testimonials. If any set of men can unite on two varieties better for every purpose than the *Crawford's Early*, and *Late*, then we should like to make a note of it: for, so far as our observation extends in the Middle States, taking them one year with another, these two will pay a larger percentage on the capital invested than any other couple of which we have any knowledge. Coming into the market, looking so large and beautiful, and withal so good, is the great incentive to purchasers to pay a good price; and if every one was aware that they are far richer than the white-fleshed varieties for canning purposes, the demand would still further increase.

The Clematis.—Few people are aware what glorious specimens the Clematis make when grown in pots or large tubs. This is especially the case under glass. Mr. George Jackmann, of Woking, Surrey, England, who is celebrated for his skill with this charming family, has erected a large conservatory for their special use. Very large pots are used, and three, or probably four, thrifty young vines are set in each, around the edge. Plenty of drainage is given them, and a rich mellow compost is used.

The trellis is in the form of a globe, and is constructed of stout wires, such as is used for the telegraph. These are bent in the form of a semi-circle, and cross each other at the apex, where they are securely fastened together.

The specimens are started in early spring in this glass house, and treated with the utmost care. The second season, when in bloom, they make a grand sight, but the third year is when they show to superior advantage, and form one of the greatest attractions at the various agricultural shows wherever exhibited, gaining prize after prize.

As a conservatory climber trained to the rafters, and allowed to ramble freely, the Clematis is in its glory; but the choicest large-flowering kinds should always be selected.

A Handsome Little Tree.—The reason that we occasionally hear complaints of the *Red Bud* or *Judas Tree* failing to succeed, is mainly on account of the owner neglecting

to take proper care of his charge. When well grown, we think it is one of the most deserving of the class of small trees which are so much needed for grounds of limited extent, and which would assist in teaching planters to give such the preference over the large specimens of oaks and maples that are too often in such places. It blooms so early in the spring, being among the very first to open its petals; its flowers are so entirely distinct from all others in color, being purplish-red; its rounded heart-shaped leaves are very attractive in appearance; and it is so entirely hardy, that we wonder it is not among the most popular of available small trees.

The California and European species will neither succeed in the Eastern States, as they are too tender for our climate, usually killing to the ground every winter. To grow our native species properly, the young branches should receive an annual heading-in every spring, quite early in the season, which induces a more compact habit of growth, and prevents the limbs from splitting—an unfortunate habit when left to grow at will.

The Telegraph Grape.—There are no exalted virtues in this variety to cause it to be universally planted; but for those who desire a little variety, it is worthy of a spot to grow. Like many other good fruits, it came into existence in the yard of a gentleman in Hestonville, near Philadelphia, a few years since, and received the name of *Christine*, by which it was known and disseminated for some time. The owner wishing to have the opinion of the editor of the *Germantown Telegraph* upon its merits, sent specimens of the fruit to his office, and he being well pleased with its quality, and as it was unaccompanied with a name, bestowed upon it the title of his paper, and so published it to the world.

According to the rules of pomology, the name under which any fruit is first described must be its proper title forever after, in this case seemed unfortunate; but even yet both Telegraph and Christine are used with equal frequency in the eastern portions of Pennsylvania. There are some very distinctive features in this grape which enables any one to detect it at a glance. It is the most compact very early native grape of which we have any knowledge, so much so as to attract attention. The quality is not of the highest order, but then it is so much more reliable than the high-flavored varieties, that we can readily forgive it for this. Its earliness is another point in its favor, as it ripens in advance of the Concord, and is over before the latter is colored.

Ornamental Hedging. — It sometimes occurs that a superabundance of evergreen hedges about a place makes a monotonous effect, a uniformity of scene that creates an unpleasant impression. To obviate all this it is only necessary to introduce a little change in the way of deciduous-leaved hedges; and we have three excellent plants to suggest for the purpose. Having tested them thoroughly, we can advise our friends to try their luck with them in the same capacity. They are, the *European Beach*, *European Hornbeam*, and the *English Maple*. But, says some honest inquirer, perhaps, Why cannot I select the native types of all these very trees? Our answer to this natural question is, because the European species, as an infallible rule, are more compact in structure, and are furnished with a larger amount of small twiggy branches than the corresponding species in this country; hence are better adapted for hedging. We confess, however, it requires no little amount of patience and perseverance to make a fine screen of these plants, as they grow slowly for a few years after setting; and they should be annually trimmed into shape to secure a good dense bottom, as this very important matter cannot be remedied in after years, when the hedge is grown. Planters mostly seem to forget the fact, that when young trees are set so closely together, they extract a far greater amount of nutriment from the soil, than when standing singly, and rarely give them stimulus. This should receive proper attention every season, if required.

Mrs. L. K. Adams, of Hillsdale, Mich., is said to have succeeded in raising currants measuring one and three-fourths inches in circumference.

The Pleasure Ground.

The Maples.

BY JOSIAH HOOPES.

IT is difficult to discover a genus of trees which embraces so many valuable characteristics, fitting them for almost every position in the landscape art, as the above.

They may not have the showy flowers of the Magnolia, nor yet the perfume of the Bird-Cherry, but for beauty of foliage, hardiness of constitution, habit of growth, and general freedom from insects and diseases, they certainly should rank high in the list of available ornamental trees.

For a rapid-growing tree, with handsome foliage, I must confess to a decided partiality for the maligned *Silver-leaved Maple;* a tree that has been censured too often unjustly, when the censure in most cases should have been visited upon the owner for careless culture. When young, the strong branches should be systematically headed-in, and the result will always be a dense round head of unexceptionable beauty. Its growth is so rapid that one need not remain long without shade, and then, unlike its rapid-growing rivals—the Poplars—it never suckers from the roots, which is volumes in its favor.

But the queen of the family is decidedly the *Norway Maple*, a tree that cannot help growing compact and perfect in outline. And then its foliage is so large, and of such a deep shade of green; even its flowers are so attractive, that surely no one can possibly find any fault here. As a street tree, objections have been raised to its branches, which have a tendency to droop, and thus obstruct the street and sidewalk; but these must be shortened whenever necessary, and on a lawn this habit becomes one of its greatest charms.

The *Sycamore Maple* is vastly inferior to the preceding, notwithstanding its foliage is quite as large; but it is more straggling in growth, more open in form, and then it seeds so freely as to become disfigured in autumn. On the other hand it grows rapidly, and makes a hardy, healthy tree in a short time; still no one who has seen it by the side of the above would for one moment give it the preference.

If it was not for the slow growth of the *Sugar Maple*, I know not of a more valuable tree of the largest size; and indeed, in deep rich soil, we sometimes find this species growing at a wonderful rate. As an example of the influence of genial soil upon growth, a specimen of the sugar maple in my own collection, although planted after many of the other trees, is to-day one of the largest, and it is needless to add, one of the most attractive as well. No tree will repay us better for our care in this respect, than the one under notice.

The *Red* or *Swamp Maple*, when well-grown, is also a valuable shade tree, but we so frequently see it entirely neglected; the trunk covered with lichens and rough bark; dead branches scattered through the top; and the outline the reverse of even; that it has come to be neglected as a species only fit for low damp spots.

This is all wrong, for it amply repays us for generous culture, and in the place of a slow, ungainly tree, it may readily become one of the most beautiful on the lawn, or along our streets.

Among autumn foliage, none other is more brilliant than this. The tints are very varied, ranging from pale yellow up to the most golden tints, then changing to bright orange, and all through the hues of crimson and scarlet.

The *Corked-bark* or *English Maple* is less in size than those previously mentioned, but it is nevertheless one of our very choice trees for the lawn and small yard. It is so beautiful in outline, from the ground up forming a perfect sphere; so dense in construction, and withal so entirely hardy and suited to most soils and situations, that we can have no hesitation in recommending it without reserve. The small neatly-divided foliage, and rough corky bark, are special inducements for planters to possess at least one good specimen. It is of rather slow growth, but we do not mind that in its case, as shade is not our object in selecting it. It does not need the shears to

bring it into shape, for it attends to that naturally: neither should it be trimmed up to a naked stem, as nature intended it to grow from the ground.

In many localities, where timber and shade is of the utmost necessity, we hear the most cheering accounts from the *Ash-leaved Maple;* not a true maple in fact, unless, as the late Dr. Darlington wrote of this tree, "ye shall know them by their fruits." It increases rapidly in size, forms a tree of the largest growth, and adapts itself to circumstances to a most commendable degree. It is not very remarkable as a lawn tree, being entirely too familiar with its abundance of seeds, which germinate with the very slightest provocation, and speedily form a perfect forest in its vicinity, to our infinite disgust.

The rare *Red Colchicum Maple*, from Japan, has not come up to our expectations as a showy tree. Whilst young, the tender growing shoots and leaves are brilliantly tinted with scarlet-crimson, but as the tree increases with age, it appears to lose this character very much, and the bright color is more subdued, and hence its interest is visibly lessened. It is, however, entirely hardy, and the green foliage is smooth, and neatly formed, partaking of the shape of the Sweet Gum.

Our western species, the *Oregon Maple* (Acer macrophyllum), like the larger portion of our trees and plants from the far west, has proven unsuccessful here. It will frequently live for a few years, and then suddenly go off in a mysterious manner. My own specimen, some ten years old, managed to struggle along, bravely fighting the cold of winter and heat of summer, and then, without any warning, suddenly succumbed to—I know not what. It is to be regretted, for the immense deep green foliage stamps it as no common species.

Another native tree, but this time from the East, seems very little more reliable under cultivation. I allude to the *Striped-bark* or *Pennsylvanian Maple.* Among its native mountains it is an exceedingly attractive small tree, with the young bark distinctly and prettily striped with white and darker markings. It is the *Moosewood* of Pennsylvania.

Another and smaller native species is known as the *Mountain* or *Spiked Maple.* In the shrubbery it forms a valuable plant, with downy leaves and greenish flowers. It is not especially striking, however, but its hardiness and rarity should be taken into account.

The *Tartarian Maple* forms a dwarf tree, with foliage not unlike the English species. It is hardy, compact in habit, and with bright green leaves which are among the first to show in early spring.

The *Montpelier Maple* (A. monspessulanum) is a hardy shrub from the south of Europe, with reddish-brown bark and leaves resembling those of the English maple. Desirable for large collections of shrubbery.

The above comprise all the species worthy of cultivation here in the Northern States at least, although there has been a large suite of splendid maples just introduced from Japan, which I have every reason to believe are not suited to our climate. The foliage of these resemble the most elegant fronds of ferns in texture and outline, some of which are apparently so finely divided as to appear like threads; others are merely deeply notched; and a third class has the foliage most charmingly tinted with various shades of red and purple. In the extensive collection of the Messrs. Veitch, near London, a large greenhouse is devoted entirely to the cultivation of these elegant plants, and in this congenial atmosphere they are in perfect health.

A few of the garden or nurserymen's varieties of the foregoing species are exceedingly valuable for lawn planting; indeed it is an open question whether some of them are not of greater value. Without aiming at a complete list of these, I shall merely allude to a very few of the most desirable.

The Norway maple furnishes us with two very unique and handsome forms, called, respectively, the *Cut-leaved* and *Eagle's Claw Maples.* The first of these partakes more of the general character of its parent than does the latter, but the leaves are divided entirely to the midrib, and thus imparts an air of distinctness and peculiar beauty of its own. It is also of slower growth than the species. The

latter is a small compact grower, with slender twigs and remarkably curious and divided foliage, cut and curled in a manner closely resembling the claws of a bird.

Belonging to the Sycamore maple are two sports; one with purple leaves, and the other with variegated foliage, both of which are quite handsome and distinct in a large collection. A newer form has prettily-spotted leaves, and is known as *Leopoldi*.

There are also several others, but possibly not superior to those already mentioned.

A very neat form of the well-known Silver-leaved maple has been introduced to notice by Ellwanger & Barry, of the Mount Hope Nurseries, Rochester, N. Y., which promises to be a valuable acquisition. It is called *Weir's Cut-leaved Maple*, and is remarkable for its deeply laciniated foliage.

A variety of the Ash-leaved maple, with almost pure white foliage, is one of those novelties that we fear will not stand the full blaze of our summer's sun, although in Europe it is an exceedingly valuable plant for lighting up the more sombre colors of a group.

Maples, no more than other ornamental trees, must be left entirely to take care of themselves. They are greatly benefited by a coat of well-decayed manure scattered over the surface of the soil beneath them in autumn, and they will assuredly repay us during the succeeding summer, by a deeper tint of green and a far more luxuriant growth.

Our street trees, by a little extra care, would look far more inviting than they frequently do.

Beds of Clematis.

IN making flower beds this spring, have plenty of room; do not forget to try several sorts with Clematis *en masse*. The sorts here named are recommended by *The Garden* as the most desirable.

Jackmani.—A lovely hardy climber, with large flowers of a deep bright violet, a profuse bloomer. Should receive first preference in every list.

John Gould Veitch.—Cannot be too strongly recommended; a magnificent "Double Blue Clematis," and a most valuable addition to this class of plants. Is a profuse bloomer, the flowers being very double, of a large size (four inches in diameter), and of a beautiful light blue.

Florida Standishii.—One of the most beautiful—flowers a kind of violet blue with crimson and carmine shining through it.

Rubra violacea.—Intense narrow shaded reddish violet flowers, which are of a rich velvety appearance.

These four varieties have been tested in this country, and can be generally recommended with confidence. There are, however, many new sorts, with attractive descriptions, introduced into America during the past two years, which are worthy of notice.

Jeanne d'Arc.—Flowers white, large and perfect, petals long, with three pale blue stripes on each petal. The plant is of vigorous habit, and elegant in appearance.

Lady Bovill.—A lovely new Clematis, having flowers of a lavender blue, good grower and free bloomer, very fine.

Albert Victor.—A thick, velvety texture, and extra fine shape, flowers large deep lavender, with brown ribs down the center petal. The ribs changing to white with age.

Gem.—This is a robust plant and a most profuse bloomer, continuing in full beauty late into the autumn, flowers as large as those of *C. lanuginosa*, but a most intense rich blue.

Lady Caroline Neville.—Fine flower, from six to seven inches in diameter; color delicate blush white, with a broad purplish lilac longitudinal band in the center of each petal.

Lady Londsborough.—Of robust constitution, producing its elegant flowers in great abundance; color a delicate silvery gray, with a white stripe down the center of each petal; a pink stain at the base of the stamens gives it a very pretty appearance.

Miss Bateman.—A magnificent plant of both growth and flower; the blooms are large, of good shape, and pure white, banded with creamy white down the center of each petal.

Star of India.—This is a very effective variety; the flowers are of good shape, and measure from four to five inches in diameter;

color rich violet purple, with a rosy purple band in the center of each petal.

Tunbridgensis.—Flowers of exquisite shape, four or six inches in diameter, dark blue shaded with purple, and ribbed on the center of each petal with dark purple.

Lucie Lemoine.—Fine double white; the flowers are composed of 75 to 90 petals. In the first period of its flowering, the blooms are semi-circular in shape, resembling a gigantic double white *Zinnia*, and the few stamens are of a sulphur color. The pure white sepals have never shown any greenish hue, like other white varieties.

Viticella venosa.—Flowers crimson, veined and striped with white.

Plants for Flower Garden Vases.

Soil.—We use a soil consisting of good turfy loam, with fully one-third of decayed manure; for other than a rich soil would soon become exhausted by the heavy summer watering we apply almost daily. A sod being placed over the draining hole, some soil is filled in, and the central plant planted or plunged in the pot it has been growing in; then the pendant, and perhaps an erect growing plant or two planted around within the margin. When all is finished, they are placed at regular intervals in a vinery, "at work," some small bedding plants carpeting the floor around them.

Plants.—As centers we use the variegated and green-leaved American aloes, which, having been wintered in the cellar, require a thin shading from bright sunshine for a week or two; the *New Zealand Flox*, *Centaurea gymnocarpa*, *Abutilon*, *Thompsoni variegata*, young but good plants of *Gloire de Nancy*, *Pelargoniums* (double scarlet), and the same of another single unnamed pelargonium we have here. Young pelargoniums we prefer to old ones, as they grow and flower well; but the old ones, although they bloom freely enough, grow but little, and in the fall have a naked and shabby appearance.

Two years ago, a foot-high specimen of *Yucca aloifolia variegata* was used as a center to one of these vases, and it had a charming effect, but it is too big now for the same purpose. Last year many of the colored-leaved Dracænas were used for the same purpose, but they performed their task badly. They will not stand the hot sun. The green-leaved Dracæna, however, such as *indivisa*, *Veitchii*, *braziliensis*, and *coryesta*, grow and flourish freely under these conditions.

We have some fine Palms, and a few other suitable plants for vase work in shady nooks, but we cannot trust them in front of the sun.

Chamærops Fortunii has been tried in vases, and it does well, but the wind fringed the leaves very much.

The finer kinds of Zonale pelargoniums, such as tricolor, bicolor, white, and variegated-leaved sorts, are very efficacious for this work in England; but here, as far as our stock extends, they are useless either for vases or flower beds. There is one exception, however—Crystal Palace Gem; it grows and maintains its character well under the hottest sun.

The smaller plants used in the vases consist of some of the single and double scarlet Pelargoniums, referred to, ivy-leaved Pelargoniums, Centaurea, Tradescantia zebrina, and the green and variegated kinds of the same; Tropæolum, Coleus Verschaffeltii, Iresine Lindeni; sometimes single Petunias, but these grow so weedy, and are so common here, that we use but few of them; German Ivy (*Mikania scandens*), one of the freest-growing of plants; and occasionally a plant or two of *Gazania splendens*. The Irish Ivy and several of the green and variegated-leaved sorts of ivies are excellent for this purpose, more than doubling their growth every year, and hanging down in graceful festoons to the ground.—*William Falconer, American Cor. Gardener's Chronicle.*

Golden Variegated Chestnut (*Castanea vesca aurea variegata*) is a new variety mentioned by the *Gardener's Chronicle*, the bold, regularly-formed leaves of which are broadly and distinctly, though unequally, bordered with a rich creamy yellow, and make it a telling object.

The Flower Garden.

Herbaceous Pæonies.

BY WILLIAM C. BARRY.

Report to Western New York Horticultural Society, 1875.

TWO artists there are—the writer and the painter—whose duty it is, each in their own way and after their own manner, to describe and picture facts and objects so that they may be at once and unmistakably realized and recognized by minds of all capacities. All will acknowledge that their resources for this work are not to be compared. The painter has at hand the inexhaustible resources of his palette, which enable him to represent colors and forms the most diverse, while he at the same time addresses himself to the most powerful organs which realize the slightest shades and appreciate the differences between them. On the other hand, the writer has at his disposal but a few technical terms insufficient to express his ideas—ideas which ought to be palpable, materialized, so to speak. These terms, of which the signification is very limited, cannot give expression to an unlimited number of things, the harmony of which exists in the depth of striking contrasts, which the most gifted of painters accomplish only with the greatest difficulty, while the writer sinks beneath the task, and is only prompted to do his best, trusting that the fancies of his readers will add the finishing touches which the brain imagines, but to which language cannot give utterance.

Fully impressed with the difficult task of attempting a description of these beautiful flowers, we trust our hearers, appreciating our position, will be indulgent, assured that their minds and fancies will amply compensate the insufficiency of our means. We think that it is safe to assert that, at the present time, no class of plants of equal value is receiving less attention in horticultural literature than the Pæony. Is it because the Pæony is too well known, and therefore common? or is it because it is not deemed worthy of notice? If such be the case, we cannot concur in such opinions, and if we shall do something towards awakening and reviving interest in this, one of the most striking and valuable floral productions of China and Europe, we shall be pleased.

Pæonies are commonly divided into two classes—Tree and Herbaceous; the latter again divided into sub-classes. The former is a native of China, and was first noticed in the year 1656, on the return to Europe of the first embassy of the Dutch East India company. The attendants of this embassy having had freer access to that country than had been granted to any previous embassies, visited all the country from Canton to Pekin; even the gardens of the Emperor, and as the result of this visit, published a work describing among other things the Pine Apple, the Tea Plant, as well as the magnificent flower of the Montan, or Tree Pæony. This volume, however, received little attention, being considered only as a collection of travelers' tales. The description of the Pæony therein given was very full and complete, but the plant remained unknown in Europe until the late Sir Joseph Banks gave instructions to several merchants trading at Canton to inquire for the Montan, and numerous plants were imported in the year 1794. It is said to have been cultivated in China for upwards of 1400 years, and some of the Chinese authors say was first discovered growing among the mountains in northern China, whence it was brought into the southern provinces and there cultivated with the same mania as tulips have been in Europe, some choice varieties of the Montan having been sold in China for 100 ounces of gold. The Tree Pæony sold at high prices when it first came into the hands of nurserymen at London; Monsieur Jositer, a nurseryman in Paris, receiving for them more than $300 each. This Montan is the parent of all the beautiful varieties of Tree Pæonies now cultivated. Tree Pæonies fill up a blank between deciduous flowering trees and flowering shrubs. In mixed borders they are invaluable as well as single specimens on the lawn. They are quite hardy, but slight protection greatly improves them. They thrive in any good garden soil enriched with well-decayed

manure. September and October are the months best suited for their planting. Good plants set at this time produce quantities of flowers the second or third year after planting. Each year the plants increase in size and beauty, and soon become the most showy and attractive features of the garden. They are the first of any of the varieties of pæonies to flower, and put forth their blooms early in May. Being naturally of what is termed slow growth, they are not propagated by division to any great extent, but chiefly by grafting upon the roots of the herbaceous varieties, which is done in August. The grafts are placed in frames, where they unite, and are transplanted the succeeding year into many rows.

To assist those who desire to form a collection, we name the following choice sorts. Any description, however complete, would fail to do them justice, so we give only the distinguishing colors.

Alba variegata—One of the most striking double varieties. The outside petals are pure white, and center pure flesh red.

Arethusa—Light rose, shaded with purple. This is a very large and fragrant variety, and a vigorous grower.

Banksii—(Chinese double blush). Pale rose-colored flowers, four to six inches in diameter.

Gumpperii—One of the finest kinds, producing bright rosy pink flowers of great size and perfection.

Incarnata flore plena—A fine white variety; fine, large, fragrant flowers.

Rochlerii—This is a choice dark rose-colored variety. Blossom large and plant vigorous.

Le Fevreiana—A very large and showy variety; bright pink flowers with rosy center.

Pride of Hong Kong—A striking variety; flowers of great size, light cherry red with purple center.

Reine Elizabeth—Bloom of immense size; rosy crimson in center, shading off to a light rose towards the margin.

Rosea odorata—Rose tinged with lilac, very large and flat.

Schultzii—A beautiful and fragrant kind; carmine colored flowers deeply shaded with rosy lilac.

Zenobia—A large fine white variety.

Herbaceous Pœonies are usually classified as Officinalis, Paradoxa and Chinese varieties—the two first being European and the third Chinese sorts. These flower in succession, the first being the Officinalis varieties, then the Paradox, and the Chinese last. The Chinese varieties are particularly fine, and we regret not being able to give such a description as would induce every person who is the fortunate possessor of a garden to plant the entire collection. Herbaceous Pæonies increase rapidly in size, and soon form a large clump, and thus, like all herbaceous plants, they should be divided occasionally, and the thriftiness of the plants will thus be greatly promoted.

The most gorgeous floral exhibition we have ever seen was an acre of Pæonies in full flower. Will you review with me some notes on the ground?

Ambroise Verschaffelt—This is one of the newer kinds, and up to the present time one of the best dark varieties known. The flowers are purplish and full.

Carnea Striata—Flesh color, striped with red; very fine.

Charles Verdier—Another new and superb variety, producing light lilac rose flowers of great size and perfect form.

Delachii—A striking and beautiful dark variety, flowers purplish crimson.

Festiva—This is a sort which cannot be too much praised. Whoever has a plant of Festiva Pæony has something which will procure more pleasure and greater satisfaction than money can give, applied in any way you may deem or in the acquisition of any object whatsoever. Imagine a plant three feet high, with beautiful dark green glossy foliage, and peering way above, ten to fifteen large heads of bloom, each six to nine inches in diameter, pure white, marked here and there with bright streaks of carmine, just enough to show how pure the white is and how beautifully the carmine contrasts with it. Match this with an

Ambroise Verschaffelt or a Delachii, and you have a picture, or a pair of them, fit for the great and mighty ones of the earth to admire —but within the reach of the humblest citizen to possess.

Grandiflora carnea plena—A variety of extraordinary size. A nursery row of this, with its hundreds of enormous white blooms edged with blush, is something to gaze at and admire.

Alongside is another row. We see *Humei*, with its large and showy purplish rose flowers, such a profusion of beauty. It seems too bad that it must fade and pass away. Now we come to *Jules Lebon*, with its brilliant and distinct carmine red flowers.

Louis Van Houtte—Is one of the dark crimson sorts, which produces a marked contrast among the fancy-colored varieties.

And another, the Louis Van Houtte (Caleb's) introduction — bright purplish cherry color—is a charming sort.

Here we see in quick succession, *Marechal Vaillant*, a new kind of dazzling purplish violet color; *Mad. Victor Verdier*, crimson rose, with white violet, very large and full.

But we have seen enough. We must leave the examination of many other varieties till another visit.

Virginia Creeper and Scarlet Geraniums,

For Producing Effect in Summer and Autumn.

LOVERS of ornamental gardening, who watch the changing colors of the leaves of the Ampelopsis hederacea or Virginian Creeper, will be delighted with the many rich and varied hues it presents, more particularly when grown on trees by the lake, or in the wood or pleasure ground. It will almost cover the highest tree, and cling for support to its smallest branches; and its appearance is simply magnificent. There are many artistic designs that would tend to improve the appearance of places where trees or shrubs present a weather-beaten or sickly appearance, particularly such structures as summer-houses, which may be formed into a variety of shapes, according to taste. Among the many varieties of climbers to choose from for covering these structures, I would give preference to Aristolochia Sipho; it is a very strong robust grower with very large handsome thickly-set foliage; it is beyond all doubt an invaluable bower plant, and, when once seen well grown, its effect is not likely to be soon forgotten. Perhaps the prettiest artistic design I have ever seen was one formed with scarlet geraniums in the open ground. In clearing away the back wall of an old conservatory (which was covered with scarlet geraniums) some twelve feet high, I managed to save them as well as possible, and opened pits at regular distances round the pleasure ground for their reception, and erected wire pyramids, about ten feet high, to which I had them tied with care; this being done, about the middle of April I gave them a little protection at night for two or three weeks; they soon began to break at every joint, and by the end of June they stood fully ten feet high, a complete pyramid of foliage and flower, without a particle of the wire-work to which they were attached being visible. The experiment having proved so successful, and the design being so novel, my employer was tempted to put over them a temporary protection during the winter and spring months, by which means most of them were saved, and were the following year the admiration of all visitors.—*Country Gardener.*

Training the Wistaria.—Mr. Anthony Waterer, a well known nurseryman of England, has hit upon an original plan to show off the Wistaria to the best advantage, by planting it to run up conifers, etc. It is to be seen growing luxuriously at Knap Hill up Pinus ponderosa, Abies Douglasii, etc.; on the latter it has attained the height of nearly 40 feet. But the best hit, and certainly one that should be adopted by every one, is planting it against the Laburnum. Here it seems quite at home, and in its glory. It flowers at the same season as the Laburnum. The contrast in color is delightful.

Gardening.

Rural Cemeteries.

BY HORACE J. SMITH.

THE landscape gardener's art is nowhere so appropriately exercised as in those places of sepulchre which now have become a distinctive feature and type of our civilization. When Abraham bought a piece of land from the sons of Heth, where he might bury his dead out of his sight, he bargained for "the trees that were in all the borders round about thereof," thus evidencing his æsthetic taste. The burial, too, of our Saviour in a garden was a fitting example for us to follow.

By degrees, the unwholesome custom of burying within or near to the church grew up, and the odor of sanctity became painfully saturated with that which was unwholesome. The graveyard back of the village church became a narrow strip at the city churches, skirting the building; and the location was chosen with the view of securing the attendance of the living at the weekly services, rather than with an eye to the proprieties of a place of sepulchre. Sectarianism dictated the place of a man's burial, and sometimes stepped in to mar the solemnity of such occasions.

The era of unsectarian places, solely appropriated to the burial of the dead, arose; but these were small, and carried on in the interest of the poor, thus leaving the prestige of sanctity and respectability with the churchyards. It was left to Americans and for men of large conceptions to invent the *rural cemetery*, where the charms of nature should be happily blended with the art of man. The example of Mount Auburn and Laurel Hill, established almost coincidently (thus showing another instance of these cities being moved by the same impulses and instincts), has been followed all over our Union; and after the lapse of nearly half a century, our lumbering cousins across the water begin to see the beauty of our system, and even talk of adopting this Americanism.

The prompt acceptance of the rural cemetery idea was, because it was introduced to the public by men who were imbued with a love of nature, and who sought to secure a place where

> Nature never should forget her buried sons,
> But cheer the summer couch with turf and dew-drops;
> Bidding Autumn's hand drop lingering garlands of its latest leaves,
> And glorious Spring, from wintry thraldom burst,
> To bring their type of immortality.

These men, bringing to their work a love for landscape gardening and for arboriculture, at once made popular amongst the masses, as well as the educated, the new system from which was eliminated, as far as possible, all that was harsh and forbidding in the sectarian graveyards.

So important have these cemetery institutions become, that a special training is needed to fit even a landscape gardener for the duty of laying them out and conducting them. The average committeeman of a board of cemetery directors needs the advice of these specialists, and a few words on the subject of the selection of a cemetery site are not inappropriate here. And first in regard to the derivation. There is an appropriateness in the use of the word cemetery by Christians, as it is derived from a word which signifies "to sleep," while sepulchre, and bury, and inter merely mean to "hide away," as in the ground.

The site for a cemetery near any American village or city which aspires to greatness (and which of them does not anticipate a grand destiny?) should be in a location not liable to be overrun by roads or streets. There can be no barriers raised like those natural ones which of themselves indicate the spot for a "God's acre." A happy illustration of what is meant is to be found at West Laurel Hill, the youngest of our first-class cemeteries, but which already has taken rank among the best. The old Laurel Hill, on the east bank of the Schuylkill, was found inadequate for the wants of Philadelphia, and the site of the new Laurel Hill, on the west bank, was selected by Jno. J. Smith, Esq., the president, from its inception, of the older cemetery. Bounded on two

sides by high and precipitous ravines, in which are water courses, and on a third by a bold acclivity rising from the Schuylkill river, it is so located that the civil engineer will never be tempted to try putting a road across it. The flow of travel must seek to conform itself to the physical topography, and even in the far distant future will ever tend to follow *around* its boundaries rather than through it. Backed up also on one of the great highways, Belmont avenue, which visects West Fairmount Park, and only a mile distant from the Centennial grounds, it is of easy access from the city, whose necessities it ministers to; while from the undulating plateau, raised 225 feet above the river, which courses at its base, most charming views are obtained.

To these three features of 1st, security from the intrusion of streets; 2d, accessibility; and 3d, beauty of location, must also be added a suitable soil. This general description must suffice for the present; but we would advise, in closing, every committee about to take up ground for cemetery purposes, to secure the advice of, and consultation with, an expert in so important and interesting a subject.

Germantown, Pa.

Hedges and Hedge Rows.

BY E. P. POWELL.

HEDGES and hedgerows have more poetical associations than fences, although a recent writer complains bitterly of the lack of fences in England—something to sit down on and "view the landscape o'er." But it is difficult to find one hedge in one hundred that has an element of either beauty or utility. And if the farmers cannot get hold of the few rules for creating and preserving good ornamental and protective hedges, they had better go back to a solid board fence that they understand.

1. *What hedges to plant.*—It is easier to say what not to plant. The Hawthorne is exceedingly beautiful for a few years, but is too easily burnt by our dry summers, especially in the West, and is attacked by the woolly aphis. This pest will make breaches which cannot be prevented or repaired. With extra care in those states where the climate is comparatively moist, the Hawthorne will do for a garden hedge. The Buckthorn is, however, the plant of all others where neatness and ornament are the main objects, combined with ordinary protection, unless we prefer evergreens. The Buckthorn needs less care, and is more easily put into shape than any other deciduous plant. It is rich in color, and grows with great rapidity. For ornament, an apple-tree hedge may be made quite passable, and with less beauty it may be well grown to turn animals. The Locust is unquestionably, take the country through, the best hedge plant for guard. It will turn the wildest animals. It is unimpaired by heat or cold, and is both easily raised and easily kept in place. There is one difficulty, however, which is sometimes serious, that while they are young, the mice will sometimes girdle the plants. This, in hedges of miles in length, as I have seen, may be a great disaster. However, by a little care in tramping down the first snow against the plants, the danger is avoided. White Willow and Osage are well understood to be of local importance, but of no general value. Of one thousand Osage hedges, it would be difficult to find ten that do not look like brush heaps. It is a vile, ferocious plant, more dangerous to man than to animals.

2. *About trimming.*—The simple rule is, with Buckthorns and other deciduous plants, to go over twice a year with the shears—long-armed hedge shears, cutting nearly back to the old growth after the hedge is near its proper height. Before that, leave of the new growth from three to six inches. Begin trimming when the plants are set out, cutting close to the ground. With evergreens, trim off the tops and cut back the upper limbs in summer. Later, cut back the lower limbs. Aim to have the hedge grow in such a proportion that when full size, it will be four feet thick at the bottom, one foot at the top, and six feet high. In planting, cut back closely, and begin to form the general outline. The best evergreen, all in all, is Arbor Vitæ. The Hemlock is in

some localities exceedingly beautiful and sure; in other sections it is winter-killed. The Hemlock belongs to a humid atmosphere. Of course no evergreen will turn cattle.

3. *Cultivation.* — Mulch the evergreens, when first set, with muck, or sawdust, or chip manure, well rotted. Repeat this once in five years. All hedges are assisted with mulching, but with the Buckthorn I simply reverse sods, that is, turn sods over that grow under the edge of the hedge, and let them rot.

4. *The tools.*—Use long shears if you have not too much hedge to allow of the labor and time. A much more speedy and nearly as good plan is, to take an ordinary sickle and cut upward strokes. It will pass a hedge that is of age nearly as well as the shears.

The Weeping Willow—its History.

A WRITER to the *American Farmer* gives it as follows:

About the year 1716, the poet Pope, while passing his time at his famous villa, *Twickenham*, on the Thames, where, by the way, the Prince of Wales, subsequently George the Second, and other notables were oft attracted by its beauties, received from a friend who had just returned from the vicinity of Smyrna, not very distant from the ruins of Babylon (on the willows of which the Hebrews, while captives, had hung their harps), a present of a box of figs. In the box was a twig or scion of a tree then unknown to England's soil; this twig he planted at Twickenham, and carefully watched and tended its growth till it became a tree, with its pendant branches gracefully bowing to the salute of every passing zephyr.

After the poet's death, *Sir William Stanhope* became the owner of Twickenham, and in 1775, during our war with England, a twig of this willow was brought to America by a young English officer, who, with others, had counted on participating in the pleasures of farming their American estates, *after having subdued the Yankees.* This young officer, while engaged on the part of the English army near Bunker Hill as aid-de-camp to the chief English commander, General Clinton, then formed acquaintance with General Washington's step-son, *John Parke Custis*, who at the time was one of Washington's aids, and was also engaged in carrying flags of truce between the two armies. Mutual esteem succeeded these frequent interviews, and a short time before the British evacuated Boston, in the spring of 1776, this *disenchanted* officer presented the twig or scion to young Custis as a token of friendship. Custis then married, and owning an estate in Abington, Va., planted it near his house, and it grew to a tree and became the progenitor of all the weeping willows in America.

This account of the *weeping willow* was given to the writer before named about twenty years ago, by the son of the said J. P. C., viz., the late venerable George Washington Custis, of Arlington.

Flowers in the Parks.—Why do we not have more of these? One of the finest features of the parks of St. Louis is the liberality of appropriations for flowers and bedding plants; and we think the handsomest sight witnessed last year in Lafayette Park, St. Louis, was a large circular bed of *Lilium tigrinum splendens*, five feet in height, a dense mass of perfectly erect, symmetrical stalks, capped with another mass of dazzling flowers. We have no such display here, except in the immediate neighborhood of the conservatories of the Central Park. When our Commissioners of Parks carry their economy so far as to cut off all music and flowers, and refuse croquet players (though permitting base ball), we wonder if not more than half the pleasure of visiting is taken away. We advocate more flowers, music and play-grounds.

The Malva family are coming into favor as herbaceous plants of great service in what is termed the "wild garden," where vegetation is allowed to run somewhat rank.

Fruit Culture.

The New Early White Grape "Lady"

BY GEO. W. CAMPBELL.

AFTER carefully testing this grape for five years past, I am satisfied that it will take a deservedly high position among our native varieties as one specially adapted to general cultivation.

The "Lady" is not a hybrid, but a pure, native Concord seedling, inheriting all the best characteristics of its parent in the way of hardiness, health, vigor and productiveness, with greatly improved quality, and at least two weeks' earlier ripening. It ripened, the past season, the middle of August, before the Hartford Prolific was fairly colored.

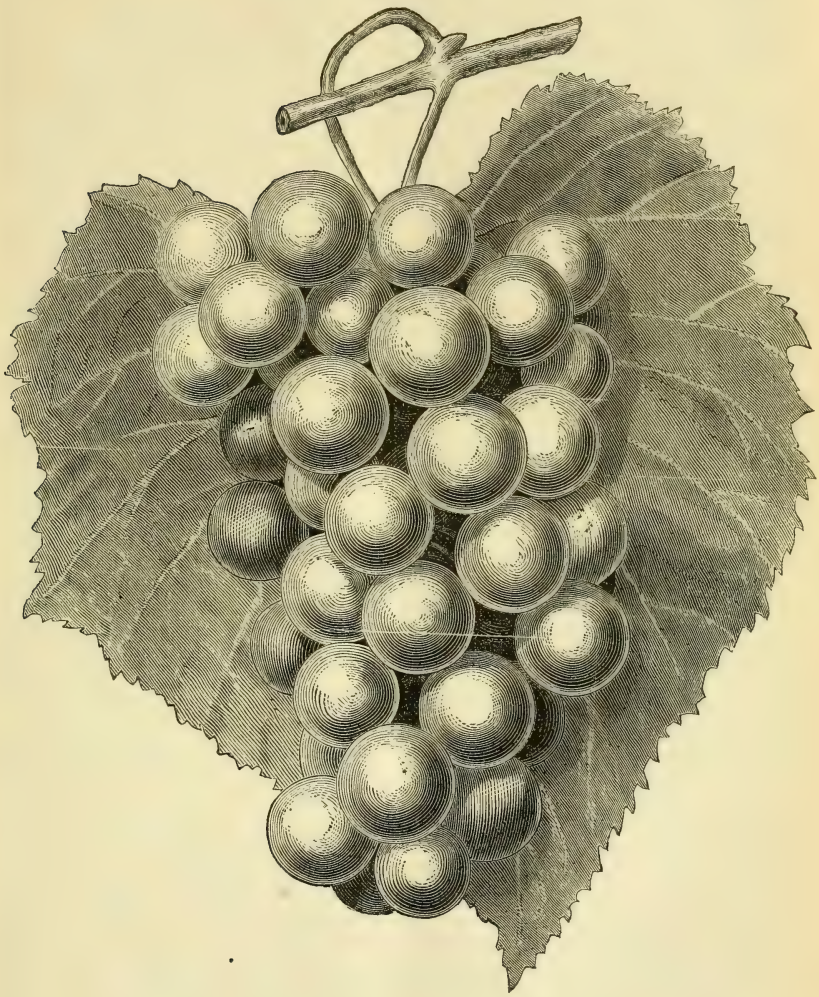
In habit of growth and general appearance it is scarcely distinguishable from the Concord; perfectly hardy in the severest winters, and entirely free from mildew of the foliage in summer. No rot or disease of the fruit has ever appeared; and it really seems to be one of our hardiest "iron clad" natives, suited to all regions where the grape can be successfully grown; and especially to northern localities where even Concord and Hartford do not ripen. I think all grape growers have felt the want of a very early variety, better than the Hartford, or Ives, or any early grape yet in cultivation. Very many have only tolerated these kinds, because nothing really good could be had in their season. It is not to be expected that the "Lady" grape will exactly suit all tastes; but I risk nothing in saying there is no grape yet introduced, near its season of ripening, that approaches it in quality. It is what would be popularly called a white grape; though it is, when fully ripe, of a light, greenish-yellow color, covered with a thin, white bloom; in bunch, medium large, compact, but not crowded; berries nearly round, rather larger than Concords; skin thin; seeds few and very small; pulp tender with no hard center; flavor rich, sweet, with a little pleasant, sprightly acid—in character suggestive of the Concord, but much more refined and delicate. The fruit hangs well on the vine even when long over-ripe; and the berries never fall prematurely from the bunch like the Hartfords and some others. Altogether, I do not hesitate to say I regard it as the most valuable *early grape* within my knowledge, and best suited to universal cultivation both for market and for home use. Samples of the "Lady" grape were sent out last August to prominent horticulturists in various sections of the country, from whom it received very high praise; some declaring the fruit equal to, and others the best of, any white grapes they had ever tasted. The opinion of Prof. Geo. Thurber, of the *Agriculturist*, so fairly expresses my own estimate of the "Lady," I venture to quote it. He says: "We have had an opportunity to test the fruit, and were much pleased with its quality. It is so much better than the Martha that it must entirely supersede that variety; indeed, to those not very critical in their judgment of grapes, this would rank among the best."

Delaware, O.

Hybridizing the Grape.

BY W. H. MILL.

EDITOR HORTICULTURIST: At your request, I offer to the public my method of producing new grapes, believing it to differ in some essential ways from the usual practice; because, so far as I have been able to make myself acquainted with other than my own ways of proceeding, there appears a lack of precise and careful personal trial to secure success. For example: In the first place, some observation is required to enable one to see that fertilization is governed by the law of natural selection; and also, because dynamic force follows the line of least resistance. Thus, in hermaphrodite flowers the conditions which govern organic fitness, and the embryo fruits' capacity for fertilization, are simultaneously developed in such close relation that no mere tying together of two clusters of grapes in bloom can ever secure hybridization, except by most remote chance. And



New White Grape "The Lady."

because gauze bags afford little or no protection against the approaches of floating pollen, and that only at a certain matured state of the maternal parent, can successful hybridization occur. Not only this, but other factors are to be taken into consideration; and, except to an expert operator, 'tis a most difficult thing to convey a concise direction in writing. And since you have also requested me to describe my grapes, I will say, that all the grape vines I now have in bearing, and those yet to bear, were originated in strict accord with the method about to be given; that, touching these and their fruits, I desire to give no expression, preferring to let them stand on their merits in public estimation, only so fast as trustworthy reports are voluntarily given them by fruit societies and from men qualified to give correct judgments for or against. And I desire it to be understood that, unless such reports place my productions on an equality of merit, or superior to the best known cultivated open-air grapes, not one of them, for a moneyed consideration, shall ever go out of my hands.

Here is the process: In the spring, when the cold grapery, containing vines of the "vinefera," are in full bloom, take a sheet of white paper, place it around any cluster of any selected variety ready to discharge its pollen, snap the paper with your finger, when the pollen will settle down in and adhere to the paper. With a camel hair brush gather it up and place it in a wide-necked vial, by twirling the brush therein; proceed thus to secure any varieties you wish; then cork tight, label and name the variety thus obtained, and place the vial in a dark, cool place.

In advance of any operation, the construction of the flower should be clearly understood, and to do this, one should examine the flowers of the grape, at different stages of development, with the microscope; he will see that the whole cluster of European varieties, and of nearly all our natives, contain many separate flowers, each one of which is capable of self-fertilization, and has a cohering cap composed of five petals, which, when mature and ready to burst open, is raised up and thrown off by the five expanding stamens inclosed within the cap. Each stamen holds a small cup, called an "anther," at its extremity, containing the pollen grains, or male essence, nicely arranged around the stigma, the terminal point of the pistil, or female organ. This terminal point, or apex, contains a viscid substance, to which the pollen adheres when brought in contact either artificially or by insects or air. When grains of pollen touch this viscid surface they cannot get away. Chemical attraction of the ovules compels elongation of the grains, and they are thus absorbed by the pistil and carried to the ovules. Thus, when we wish to produce a new variety, we place the pollen of any desired kind upon the viscid stigma of any other. This careful manipulation, at the proper time, secures success.

I have secured, as above set forth, and kept for a whole year, the pollen of many varieties In anticipation of the time to operate on hardy out-door varieties, you are to prepare yourself with a very small pair of scissors, and forceps, and magnifying glass of sufficient power to see each separate pollen grain distinctly. Have ready a number of good, smooth, sound paper bags capable of preventing the smallest grain from passing through them; also a lot of blank labels. Thus charged, watch closely the open air grapes for the time when they are nearly ready to burst into bloom. This is the critical period for hybridizing, and the success in producing new varieties greatly depends on the operator's correct anticipations, and by preceding nature in its removal of these small flower caps, inside of which are neatly folded up the stamens, with their cups of pollen, not yet sufficiently matured for the work of self-fertilization; but if these anthers or cups become ruptured or broken inside of the adhering pistils, you might as well cut away this flower, for, one to a million, the stigma has received the fertilizer upon its viscid surface, and perfect hybridization becomes impossible. To meet this difficulty, one must go gently to work, and with the forceps remove the cap by moving it first to the right, then to the left, in an upward direction. A

little practice will soon enable you to lift it off. Before removal, cut away four-fifths of all the flowers in the clusters you are operating on. After removal of such caps, with your scissors cut away the five stamens; with your glass inspect the viscid apex stigma or female organ of the embryo grape. If you have been so fortunate as to have successfully removed this cap without injury to the stigma, or spilling the pollen thereon, you can at once apply with your camel hair brush any kind you wish to select from the vials containing the named pollen; dust it on the stigma, then again use your glass and see if the female organ be well covered by the pollen. You may proceed thus until you have fertilized a dozen flowers of a cluster, always using the same pollen for the same cluster; at once cover the whole cluster with your paper bag, correctly label the bag with the parentage, and thereafter leave it untouched until all grapes in the open air have set their fruit and commenced growing. You may then venture to remove the bag, and if the young fruit is swollen, your work is good; but if not commenced growing, or dried up, there has been no organic fitness nor chemical affinity between male and female. I found this difficulty to check development between Chasselas d'Fontainbleau (male), Rebecca and Isabella (females), and in some other cases. The operator has little else to do during the growing season than to protect his hybridized clusters from casualties—boys, bugs, birds.

If one's judgment on combination of qualities is good, and, in addition, he removes all fruits from the vine carrying the hybrid clusters, and in other ways known to cultivators, place the sought product under the most favorable conditions of development, the season being favorable, one will attain results to be proud of. In the fall of the year allow the berries operated on to remain as long as possible on the vine, to get thoroughly ripened; after which you must at once separate and plant them in a seed bed previously prepared and made up of leaf mould and good black meadow loam and sand, thoroughly mixed. Protect this bed from severe frost by a covering of leaves. In the spring uncover and partially shade from rays of the sun during the summer; look well to your young growing seedlings, and protect from drouth, cut-worms, grubs, and other injuries. This will complete first and second years' work, and my present article.

Hamilton, Province of Ontario.

Peach on Plum Roots.

EDITOR HORTICULTURIST: In a late No. of your journal are remarks on the above, which we can indorse from experience; but we plant the trees four or six inches deeper than the union, having in the first place set the grafts an inch or two below the surface of the ground. We do not remember what varieties take best on the peach stock, but as the Imperial gage (Prince's) and Wild Goose plums both work well on it, nearly all others will. Years ago I had a row of six Prince Imperial gage trees that were grafted on peach, which, on removing the stumps (the trees were cut down because the curculio was more than a match for me), I found that the plum had sent out roots in all cases. In some instances the foundation was wholly plum, and the place where the graft had been set could not be seen, nor any sign of peach root left.

Here the peach is as hardy as the plum—in fact hard to kill. Yellows we know nothing of, and rarely does the borer destroy one. They grow very vigorously, and our late dry autumns ripen the wood well. But 18 deg. below zero is too much for the blossom buds, and in the large number that I have examined, have the first sound fruit bud to find among the choice ones. Among the seedlings there are a few left. S. MILLER.

Bluffton, Mo.

Blackberries.—Of the 4 blackberries on the American Pomological Society's list, Kittatinny receives 22 votes; Wilson's Early, 18; Lawton and Dorchester, 13. This decision is right. The Kittatinny is our best blackberry, although our New York marketmen will not buy it, because "not shiny enough."

Window Gardening.

Ferneries.

BY JOSIAH HOOPES.

THIS name, which is usually applied to the Wardian or other glass case for the adornment of our rooms, is really the appropriate title for glass houses erected for the especial growth of Ferns and Lycopodiums.

In Europe, where great attention has been paid to this class of plants for many years, the Fernery is always one of the range of houses in every well-regulated place, and no expense is spared in fitting it up in the most complete manner. As a usual thing, the ordidary board staging is entirely dispensed with, and in its place is erected a rock-work, so constructed as to resemble nature's arrangement, as well as to combine every possible convenience for the healthy growth of its inmates.

These houses are erected either in the lean-to, or else in the double-pitch, style; the former in small places being the most economical, as well as being better adapted for the intended purpose. It should face the north, as shade is of the greatest importance, and at the same time it must always be borne in mind that moisture in the air is the sure essential to its success.

A double-pitch house can be made available by coating the glass with some preparation that will prevent the rays of the sun from entering, but yet allowing plenty of light to pass through.

Two of the most complete houses for growing ferns exclusively, are owned by the celebrated nurserymen, James Backhouse & Son, of York, England. One of these is constructed altogether below the surface of the ground, and covered with heavy corrugated plate-glass. To add to its attractiveness, and at the same time to form an agreeable surprise to the visitor, the entrance is entirely hidden from the outside by dense masses of shrubs and vines. Among these one notices a little rustic gate, which, upon opening, discloses a series of winding stone steps arranged in a natural manner, flanked on either side by masses of moss-covered rocks and vines.

In the interstices are growing hardy ferns of various kinds, with an occasional Alpine plant that loves such moist shady spots. Soon before us, we notice a rustic door, placed, as it were, in the solid rock; upon opening which a little glen, with all its fairy belongings, greets our eyes. Here huge boulders, tier upon tier, irregular and as natural-looking as the hand of man can imitate nature, rise up far above our heads, whilst their outlines are often completely concealed by the clinging moss and trailing Lycopodiums. Tiny species of ferns are dotted about here and there, as if the owner of this enchanted spot had no hand in the matter at all: whilst great fronds spread out over all, reminding one of ostrich-plumes in the truest sense of the word.

Little rivulets, starting at the summit of the rocks, run trickling down, or else leaping from ledge to ledge until they reach the little pool below, where the aquatic species revel in wanton luxuriance. The visitor comprehends at once how admirably adapted this artificial atmosphere is to the class of plants for which it was erected.

The air is constantly charged with moisture, the place is cool and shady, and the rocky surroundings precisely what the cryptogamous plants enjoy.

Not far distant is located the other of these model ferneries. This is a large double-pitch house, covered with the same heavy corrugated glass, and only partly under ground. The winding walk passes all round the house, sufficiently distant from the outer walls to allow of a rocky covering to the latter, and with a depression in the center of the whole space, of several feet beneath the outer surface of the ground. Here is located a little pool that answers admirably for certain classes of plants that delight in a moist spot. As in the preceding house, this too has its miniature cascade, which tends to keep the atmosphere charged with moisture.

But the character of the ferns are very different. Here we notice the trunks of *Dicksonias* and *Cyatheas*, with their rough shaggy

bark, surmounted with long waving fronds, whilst intermingled with rare tropical species are the delicate trailing stems of many a choice *Selaginelli; Todeas* with their filmy fronds as fine as gossamer threads, looking as if a touch would destroy the illusion,—so fine, indeed, as to require a white back ground to bring out the feathery tracery of veins and tissue. All manner of rare and beautiful forms are clinging to the rocks, from the charming *Adiantum Farleyense* to the little crested and thread-like species that one is apt to pass unconsciously by. The most captivating *stove*, with its choice stock of rare exotics, could not by any possibility exceed this show; it is far beyond description, and far abler pens than mine have failed in setting forth its charms.

In planning a new fernery, we must first decide what shall be the cost of our structure, and what amount we propose to invest in its contents. These are questions that will in the future decide many an important operation. If means are limited, then select the side of a building, with any exposure rather than due south. Erect an ordinary lean-to house, and if the plants are intended for exhibition purposes, or if the owner prefers to change the arrangement of his plants occasionally, then they must be grown in pots, and flat tables be placed along the front and back: that at the front should be narrow, whilst the one along the back may be of any width that the size of the house will allow. Where the back wall is of stone or brick, a beautiful effect is formed by passing fine wires over the whole surface, crossing each other, and fastened at the junction to large-headed nails. The space between these wires and the wall should be filled in with peat and moss, the latter green if possible, and then planted with small ferns and Lycopodiums.

Over the pillars and around the doors may be trained the slender delicate stems of the *Lygodium palmatum;* and as an additional ornamental feature, the water tank, which is an indispensable article in a fernery, should be neatly surrounded with rough mossy stones, from the interstices of which may droop graceful little fronds and creeping Lycopodiums.

Although the culture of ferns, suited to the temperature of a cool house, is not attended with any great skill, yet there are certain requirements that are absolutely essential to entire success. The air must be kept moist; this is of far more importance than an abundance of water at the roots. Frequent syringing, not so much on the plants as over the floor, walls, etc., will have a good effect; indeed, certain genera of ferns, such as the *Cheilanthes, Gymnogramma*, etc., will not endure water on the foliage.

Ferns, however, delight in plenty of water whilst in a growing state, and the moment this is withheld, some insect pest puts in an appearance. One of the most persistent of these is the terrible scale insect, which attaches itself to the under side of the fronds as well as to the stems. The only way to eradicate them is by using a sponge, and gently rubbing them off, being careful not to injure the plant.

Thrips are very troublesome, and may be destroyed by fumigation with tobacco-smoke; but sometimes the remedy proves worse than the disease, as the curled and scorched fronds abundantly testify, after the process has been performed by an ignorant operator.

The best soil for general use may be composed of equal parts of thoroughly decomposed sods, and peat, with a smaller proportion of sand; and the best season, the latter part of winter. Always give plenty of drainage to the pots, as ferns dislike water to remain and stagnate about the roots.

But the fernery, *par excellence*, is undoubtedly that which is constructed in the style of those previously described in the Backhouse collection. A double-pitch house, without staging, and filled with irregular mossy rocks, the ferns growing in the crevices, and water trickling among them, cannot be excelled in the whole greenhouse department.

It is neither expensive, nor difficult to manage when completed. A knowledge of fern-life, and the general laws that relate to their culture, will be sufficient to form a collection that cannot fail to please the most fastidious.

Hints.

THE wax plant, or Hoya, is rarely brought to perfection. Its capacity for foliage and bloom is remarkable. I have one that has every June not less than one hundred clusters open at a time, and is in its glory for two months. It has, besides, a second bloom, not so profuse, later in the season. It covers a ceiling about eight feet by ten, and is still rampantly pushing its way to right and left. The pot stands high and exposed to morning sun. The most of the vine has the sun for a few hours each morning. It has not been repotted for several years, but is in a large 15 inch vase. The fragrance of the blooms permeates the whole house during their season, besides inviting the humming birds to sip the superfluous sweets. The Hoya needs a copious supply of water during most of the season. Be careful not to pick the flower stems, for new buds are pushed out annually from the same stalk.

A friend asks: Why are my plants never in good shape? 1. You never give them a rest. Set them away with almost no water or light, and let them sleep for three months. Do this as a plant is out of bloom and not growing. 2. You do not prune enough. Cut the plant into shape when you bring it back to the sun. 3. You do not water and turn about your plants *regularly*. Generally water about every second day. Let the quantity be proportioned to the amount of growth. If the plant is past starting, water sparingly. But different varieties make different demands. As a rule, water callas, calladiums, ferns, lycopods, fuchsias, abundantly; cacti, except in bloom, rarely; geraniums moderately, to produce blooms; heliotropes never let get dry when in growth; calceolarias need a good supply; so also begonias. Roses, with good drainage, can drink well; but look out for sodden earth. 4. You try to raise too many plants, and get only a lot of sticks. Try two or three, only just enough to give all of them full air and light. But by studying the growth of plants you can raise more than by expecting all to act alike. Take a window of fuchsias—enough variation of growth can be found to give you one or two pillar varieties; one or two pendents; one or two for edging; one or two for tree form, say five feet high; others for pyramids growing between. 5. You don't love your plants. You keep them to gratify yourself, and expect them to grow and blossom as your slaves. They will not do it. You must study each one, and sympathize with it. It is easy enough to have fine-shaped plants, if we attend to a few simple rules.

Plants, as a rule, do not feed largely on the air, nor on the soil; but on the air through the soil. Therefore stir and loosen the soil frequently. Pulverize it, on the same principle that the farmer ploughs about his trees.

Leaf and Flower Impressions.—Oil a piece of white paper on one side; hold the side that is oiled over a lamp or pine-knot smoke till quite black; place the leaf on the black surface, as the veins and fibres of the leaf show plainer on the under part; now press it on all parts of the leaf with the fingers; then take up the leaf and put the black oiled sides on the page of a book (made for leaf impression) with an extra piece of paper on the top to prevent smutting the opposite page; press it a few moments; then remove the green leaf, and the impression will be left on the page as beautiful as an engraving. Flowers of single corolla can be pressed in like manner. Many of the geranium leaves make beautiful impressions. The impression book may be made still more interesting by giving botanical classifications of each leaf and flower.—*The Garden.*

White Lilacs for Forcing.—We hear and see a good deal, (observes Mr. Fleming in the *Florist*), of the French productions in the way of White Lilac, but the French plants are large before they are fit for their method of forcing. In the variety called Dr. Lindley, however, he remarks, we have a sort that will supersede the old form with all persons who require to force since it sets its buds on small plants, and opens freely; plants 18 inches high bear a dozen thyrses of bloom, and if forced in a shady house the flowers come a good white.

Editor's Portfolio.

Death of M. L. Dunlap.

We regret to hear of the death of M. L. Dunlap, of Champaign, Ill., which occurred February 14th. At the time of his death he was just past sixty years of age, and for almost his entire life had been connected with horticultural occupations and rural literature. He has of late years become most widely known in the West for his connection with the *Chicago Tribune* as its agricultural editor. His articles to that journal, under the signature of "RURAL," were unique, interesting, practical, with a good-natured, jolly spirit pervading them, which made them universally liked. Previous to his connection with the *Tribune*, he had been a frequent contributor to the principal Rural journals of the West. To the *Prairie Farmer* he contributed his first articles, under the head of "TIM HARDUP," describing the funny haps and mishaps of "*How not to do it upon the farm.*" He was editor of the *Illinois Farmer* for six years, and has frequently contributed to the horticultural periodicals of the Eastern States. He has taken active part in Western political life. When in Cook county, he was one of the members of its first board of supervisors, and was the means of locating the Industrial University at Champaign. In all the plans and vicissitudes of management of the University he took an active part, as though it were a thing of his own creation. He was remarkably good natured; affable to all; universally esteemed; and his memory is pleasantly treasured by hosts of sincere friends.

The Home Florist.

A beautiful little manual on Flowers and Garden Management has been sent to us by Long Brothers, of Buffalo, N. Y. It is concisely written, full of good practical hints, and is a welcome addition to the floral literature of the country. We wish more florists would write to as good purpose and in as appropriate a way. The pamphlet contains 88 pages, with over one hundred and fifty different subjects on flowers, culture, and decoration.

An Important Explanation.

Many who have directed letters to us this winter have wondered at receiving no reply. I must explain that this day there was arrested a shrewd rogue, who has been robbing the United States mail for the past three months, in whose possession were found over 2,000 letters directed to me. He is now in prison, and as fast as possible all these letters are being answered. Few know the anxiety or embarrassments felt at such a state of circumstances. The money taken exceeded $2,000; but most of it will be recovered. The embargo being removed, our friends can now feel sure of prompt attention to letters.

HENRY T. WILLIAMS,
Box 2445 New York City.
February 25th, 1875.

April Number.

This will be issued in advance of usual date, viz.: by 1st of April instead of 15th. Advertisers should send in their favors before 20th or 25th March.

Transactions of the Michigan State Pomological Society.

Prof. W. J. Beal has favored us with a copy of Transactions of this Society for the year 1874, containing over 500 pages of matter. We notice, in reviewing the contents, that great credit is due to its Editor for its arrangement and its complete information. Probably no volume of any Society, issued in the past ten years, has so much really first-class useful matter as this, upon fruit topics. There are able articles on "Diseases of the Peach Tree," wherein answers are given to fourteen different questions; and letters from cultivators, very full and minute in detail, are added. The committees appointed to consider the subjects, make some important recommendations which we quote elsewhere. A good article on cherries is given by H. S. Chubb. Grapes are described in detail by T. T. Lyon. The codling moth is memorized by an essay of B. Hathaway; and the nine best strawberries receive special vindication and description. Birds, orchards, drainage, insects injurious to house plants, and discussions, are all very interesting. We doubt the

ability of this or any other Society to produce a better volume than this, unless by extraordinary effort.

Yellows in Peaches.

The committee of the Michigan State Pomological Society, after careful examination of this subject, make the following recommendation:

1. The primary cause of the yellows is a weakening of the trees by overtaxing the soil, thus depriving them of a large portion of the sustenance they should receive from the earth.

2. Yellows may be reproduced by planting pits taken from the fruit of diseased trees. The disease will be developed sooner or later, no matter on what soil grown, or how well cared for.

3. Orchardists are recommended to destroy every peach tree on the premises that shows signs of yellows; not to raise stocks from diseased trees, or to bud from them, or to buy trees from a district where the disease is known to prevail.

4. The practice of allowing trees to ripen large crops of fruit for several years in succession, will reduce their strength and ability to resist the disease.

Annual Register of Rural Affairs.

Of all the various Annuals published several years since, by the leading Rural papers, this is the only one which has become permanent, and has now reached its twenty-first number. It is very neatly printed, contains over 100 pages of compactly-printed information upon farm and garden topics. The most prominent articles in this number relate to Fruits, principal varieties, with culture; Construction of Greenhouses; Cranberry Culture in New Jersey; Notes on Fruit Culture. More than three-fourths of the contents are devoted to horticultural topics. Published by L. Tucker & Son, Albany, N. Y. Price 30 cents.

A True Country Gentleman.

The city of Wheeling (West Virginia) possesses a lover of rural refinement who delights in all kinds of floral and rural oddities, prompted by generous good nature and love of gardening. We have lately heard something about him, which leads us to bring him forward to public notice, and give him full credit for a lifetime spent in the encouragement of home ornament. We refer to Mr. Thomas Hornbrook. In the parlors of a friend, there bloomed, one day the past fall, three immense bouquets, a present from Mr. Hornbrook. The largest was composed almost entirely of magnificent Tube roses, in full bloom, in the very fullness of their beauty and fragrance. This bouquet stood about three feet in height and was surmounted by a wreath of Smilax. The other two bouquets were almost equal in size to the first, and were composed of Lilliput Bouquet, Dahlias, Gladiolus, Salvia, Tritomas, red, white and purple Dahlias, and Japanese Honeysuckles. The floral pyramids were crowned with most beautiful specimens of the Coxcomb, and the vases were set among Coleus or foliage plants of the richest and most varied hues.

Mr. Hornbrook's property, where he has spent twenty years of intelligent effort, is about four and a half miles from the city. It contains fifty acres, laid out with two entrances, and avenues which in extent reach fully a mile. One of the avenues is thirty-six feet broad, lined with an espalier of many different kinds of trees, vines, etc., and are, in their season, superb reaches of bloom, fragrance and shade. Various places give splendid openings for glimpses of beautiful scenery, and throughout the drives it is constantly bordered with specimens of the best of evergreens and ornamental trees.

Mr. Hornbrook is interested in four specialties, viz.: *Evergreens*, of which he has forty-eight varieties; *Magnolias*, ten varieties, viz.: *grandiflora*, *glauca*, *tripetala*, *umbrella*, *macrophylla*, *acuminata*, *auriculata*, *conspicua*, *purpurea*.

Pear trees are represented by a list of 2,000 trees, and *Roses* of nearly 400 varieties. The principal evergreens are from 38 to 45 feet in height, and comprise the Red Cedar, Heath-leaved Cypress, Lawson Cypress, Cedar of Lebanon, and the usual assortment of spruces, firs and pines, best cultivated sorts. Of the

maples Mr. Hornbrook is specially fond, and takes great pride in the large noble specimens of Norway, Sugar, Sycamore and Silver Maples. Flowers are in abundance, vines, shrubs and garden fruits.

His place is one of great resort for visitors from the city, and one special feature is the welcome given to every one. Numerous finger boards are placed at intervals, with directions where to go and see the things most worthy of observation, and how to conduct themselves while on the premises. The following are some of the inscriptions copied from the same:

(Fronting the pike.) "Thomas Hornbrook's place. Ladies and gentlemen are welcome."

"A good spring of cool water for thirsty souls."

"Don't stone the birds or destroy their nests."

"Avenue to the top of the mound. Drive up."

"Hitch your horse here if you wish to promenade, and do your courting. There are many quiet little walks and shady, retired nooks exceedingly convenient for such pleasant business."

"Ladies and gentlemen, when you call to see my place don't think that you are under any obligations to call on the proprietor."

(On top of the mound.) "Well 70 feet deep, containing 30 feet of water."

On the principal eminence is a place naturally suited for a magnificent residence, but, with a humor peculiar to himself, he informs visitors by means of one of his finger boards, that he has now given up the idea of erecting an "earthly mansion," and intends securing a more permanent one in heaven. In the meantime his residence in the midst of his garden will do till the other is ready.

The cleanliness, tidiness and thrift of the place are everywhere noticeable. Every year he goes out early in the spring, as soon as the weather will permit, and at the head of eight or ten men works early and late until the grounds are in thorough order. His humor, quaintness and peculiar habits have made him celebrated in the vicinity, and as we read of him, recall stories of the old-country squires, few of whom are left to bless society.

Hybrid Grapes.

In looking over your November No. of THE HORTICULTURIST, I was startled by your announcement and description of "A Remarkable Collection of New Hybrid Grapes," for up to the time of reading your article, I was under the pleasant impression that I had preceded all other experimenters in producing hybrid grapes, far surpassing in excellence any hitherto known variety; therefore must confess the article describing Mr. Rickett's productions has created in me the greatest curiosity to know how he operated to produce them. I am at perfect liberty to give full and minute description how I produced mine, and will, with your permission, give to the public a full statement after publication of Mr. Rickett's "*modus.*"

I have produced the most delicious white table grape, ripening with the Delaware, having a flavor and aroma undistinguishable from Bowood Muscat, with bunch and berry larger than Iona; this and my other vines standing without protection our Canada winters.

Among my hybrids I have also a red grape, compact in cluster, larger in bunch and berry than Walter, ripening with Hartford, and was this season tested by judges in Hamilton against a number of under-glass grapes, and by them pronounced the sweetest. I have also a black grape of the very highest excellence, very nearly equalling Muscat Hamburgh in flavor, with a meaty pulp rivaling the white one above mentioned. I have others superior to any now under cultivation, all of which I desire to bring before fruit societies, another season, from which committees can be selected to report thereon. But none shall ever be sent out unless superior to the now cultivated best varieties. It does appear to me, however, that my hybrids must do away with the necessity of growing grapes under glass; yet for the present I will put forth statements touching these grapes, with great reserve. WM. H. MILL.

Hamilton, Ontario.

The Green Fly.

It is well known that tobacco smoke, when properly applied, effectually clears the plants in a frame or greenhouse from the aphis; but the same agent when used in the open air is almost useless, for although a puff of smoke will dislodge the enemy, it does not kill it—it is only intoxicated for a time, and will speedily return to its predatory attacks. Having myself a collection of Roses scattered rather plentifully over about an acre of ground, and all much disfigured with green fly, I therefore commenced operations with gas water. Having diluted it with six times its bulk of water, I plentifully syringed some climbing Roses trained against a wall, but to my vexation the insects were unmoved either by the smell or the taste of the dose. What followed I relate as a warning. If the aphis was unaffected by the gas water, other things were not. Despairing of cleaning my trees by any solution or decoction, I resolved to have recourse to the labor of the hands, and recklessly to crush the bodies of those I could not poison. I went over the bushes and drew my fingers up the shoots infested, thus slaying thousands in a minute. In this way I pressed to death all that I found on the Rose buds. The operation is very disagreeable, but it is more effectual than any other I know. As the juices of the insects thus destroyed form a sort of gum on the branches, they must be well syringed with water as you proceed. By this mode I have brought the enemy under, although he is far from being quite destroyed. As the aphides begin to move when the branch is disturbed, I think the shoot which is covered with them should be held over a basin of water and then gently and carefully brushed, so that the insects may fall into the basin. These modes of procedure may appear very tiresome, but it is to be understood that a well-regulated garden is only made so by tiresome processes.—*Cottage Gardener.*

Rhododendrons.

S. B. Parsons, in a letter to the *Christian Union*, says: The idea is exploded that peat is necessary for Rhododendron culture. In the moist climate of England it may submit to the peat treatment very patiently, but here it rebels outright. I will venture to assert that not in England are found more thrifty and luxuriant Rhododendrons than on Long Island; and we plant here in ordinary farm and garden soil, which is not sandy, but a light loam. If our soil were an adhesive clay we should lighten with a little sand. Rhododendrons are more impatient of wind than of cold; and it is always better to plant them to the leeward of some tree or house shelter on their north and north-western side. Such location is always attainable, and, with a little care in this respect, Rhododendrons may be grown anywhere. They should never, however, be planted in the shade of large trees. The foliage may be of a finer green, but the moisture of the ground will be exhausted by the roots of the large trees, while flower-buds will not form as they will in the open sun. The Rhododendron has an abundance of fibrous roots, is therefore a gross feeder, and is much benefited by a mulching of stable manure during the winter and spring. A less stimulating mulching is better for the summer. Our experience is quite different from that of Mr. Rand, who prefers a northern slope. We should carefully avoid it. My summing up would be that the Rhododendron can be safely commended as one of the plants which should be found in every garden; and if room can be found for only one plant that plant should be a Rhododendron."

The Eucalyptus.

It is stated that not less than 1,000,000 trees of the *Eucalyptus Globulus* have been planted in California. Near Hayward, about 150,000 were planted by the Surveyor-General, and though but five years old, still many of them are forty to fifty feet high.

The Best Tomatoes.

The English gardening journals, now candidly concede that the Trophy is the best late tomato, and the Canada Victor, the best early. So much conceded to American excellence over the rest of the world.

A Thrifty Fruit Region.

Some idea of the immense fruit interests of St. Joseph, Michigan, may be gathered from

the First National Bank, of that city, which has last season paid out $1,000,000 to fruit growers on checks received by them in return for fruit.

A Huge Tree—the Largest in the World.

An Australian paper publishes an account of "an enormous fig tree," exceeding in stoutness and grandeur the forest giants of California. Three feet from the ground it measured 150 feet in circumference; at fifty feet it sent forth giant branches, the trunk at that height being eighty feet in circumference.

American Apples in London.

American apples have now been very generally introduced in all the larger towns of both England and Ireland. The Baldwin is the kind as yet most common. They seem to go in excellent condition, packed, simply, in barrels. English journals think it a noteworthy fact, that fruit like this can be brought several thousand miles, and sold as cheaply as home-grown fruits.

A Good Idea.

Some French manufacturers have choice flowers planted by the side of their factories, and the ground being kept warm by surplus steam, frosts are warded off until the dead of winter.

A Rose of the Garden.

A beauteous rose was once my special care,
In favored nook 'twas nursed; there, as it grew,
I watched its op'ning beauties come to view;
And its sweet fragrance filled the grateful air.

The friendly foliage lent an added charm,
For beauties, half-concealed, are thus enhanced,
And through the flutt'ring leaves the sun but glanced,
So now I thought my treasure safe from harm.

But ah! I had not counted all the foes
That blight a budding life, and so my rose,
Though sheltered from rude blasts and scorching rays,
Was plucked by cruel hand ere half its days
Were numbered, like some human flow'ret doomed
To die neglected, when it scarce had bloomed.

—*Victoria Magazine.*

The Eucalyptus Globulus.

Italie, a paper published in Rome, says that of three thousand trees of the *Eucalyptus globulus*, planted at San Sisto Vecchia by the municipal government, none are in a flourishing condition; and of all those planted along the line of the railroad between Rome and Naples, only those near Naples are living. It is almost certain, says *Italie*, *Eucalyptus globulus* will not grow in a temperature below 27 deg. Fahrenheit.

Made Land.

The reclamation of a very valuable tract of land upon one of the Scotch rivers was made in a simple manner quite recently. Stakes were driven into the mud at the water's edge at regular distances parallel to the course of the river. Between these stakes branches of trees and brush were thickly matted or interlaced. This simple contrivance resulted in the deposit at every high water of large quantities of silt and mud, until at last an embankment was thrown up without any further expense, sufficient to keep out water except at high floods. The land thus reclaimed was sown with grasses, and is now used for grazing cattle, and is valued at $300 per acre for this purpose alone. There are thousands of acres alongside of our rivers, both upon the coast and inland, which might be reclaimed in this or similar ways at very little expense. As a preventive of washing away of banks, it might also be made use of in many cases.

Vineyards and Farming in California.

Vineyards are attracting more attention every year. As an instance of the scale on which the Californian does whatever he undertakes, there are vineyards of 90,000 vines in bearing, and many of 100 acres in extent, and companies which have 500 acres.

The dairy interest is also growing in importance, and dairymen count herds of 1,500 cows, with ranches of 15,000 acres. As an illustration of the practical results of this style of farming, we quote the following from an exchange, showing the receipts of wheat in a single day at Stockton: "The streets were unusually thronged yesterday with wheat teams from the country. As near as we could ascertain, the number of teams which arrived with wheat was 267, bringing a little over 1,100 tons. The amount which arrived by rail was 34 car-loads, or 340 tons, making a grand total of about 1,495 tons."

The Eucalyptus as a Sanitary Agent.

The city trustees of Sacramento have ordered an expenditure of $300 in the purchase and setting out of Eucalyptus trees on Tenth and R streets in that city. The order was made upon the recommendation of the board

of health as an experiment to test the power of the tree as a preventive against chills and fever. If successful, the trees are to be introduced into Sacramento upon a larger scale. If the result be as anticipated, there are other sections of the State which will doubtless follow the example of Sacramento. Much has been said about the rapidity of growth of these trees, but the most extraordinary statement yet made is by a writer in the *New Age*, who avers that there are Eucalyptus trees in Orange, Los Angelos county, set out only a year ago last March, which now measure twenty-three inches in diameter at the base.

Humors of the Grasshopper Raid.

They say of the grasshoppers in Kansas, that at Topeka they "eat the peaches from the trees and then threw the stones at the people as they passed." In Wisconsin they say "they stopped a train one morning, seized the daily papers, and there learning that a section had been missed by them, turned back and finished the job." Stopping the train is no joke. They have frequently piled themselves so as to cause the driving-wheels to stick on their broken bodies. The ladies have an aversion to them, as they cannot walk out without capturing from 50 to 200, and bringing them home. In church you can safely assume that every lady has a few score hidden in the folds of her robes. A sudden twitching of the features, a clutching of the fingers, or a faint scream, will indicate that one of these captives has "struck for liberty."

Sex in Plants.

At a meeting of the Academy of Natural Science at Philadelphia, last June, Mr. Thos. Meehan read a paper on "The Laws of Sex." He said he had at various times called the attention of the Academy to specimens of numerous plants, which illustrated the principles, that sex in plants was the result of grades of vitality, * * * the higher grades of vitality only, producing the female sex. He exhibited specimens of the common black walnut (Juglans nigra), which furnished excellent illustration of the fact, showing that there were grades of growing buds. The most vigorous buds were devoted to the increase of the woody system of the tree. Lower down the strong last year's shoots were also buds not quite so vigorous, which bore the female flowers. Below these were small weak buds which were often too weak to push into growth at all, but when they did, bore simply the male catkin. He was fully convinced that there was not so great expenditure in vital force in the production of male flowers as there is in female flowers.

The Ascent of Sap in Plants.

Prof. McNab has presented to the Royal Irish Academy a memoir on the ascent of water in the stems of plants, to investigate which point very many experiments were made. He finds in the privet the rate of ascent to be about six inches per hour; in the elm 16.6 inches per hour; in the cherry laurel the rate varied from 24 to 13 inches. Experiments were also made as to the influence of sunlight and darkness, the influence of the leaves, and the influence of pressure.

Hen Manure for Onions.

The *Germantown Telegraph* says: "Hen manure, where only a small quantity is gathered, is better adapted to the growing of onions than anything we ever tried. Although a very powerful manure, we have dosed our onion beds very liberally, and we never saw any but the best results. When large quantities are saved, it should be made fine, mixed with two or three times its bulk of gypsum, and applied to the corn hills at planting time.

Tropical Vegetation in Florida.

A lady in Lake City, Fla., has growing in her garden a genuine cork-tree thirty feet high, the bark on which is sufficiently thick to make bottle-corks. There is also in the same garden a genuine black pepper bush, which yields regularly a full crop of berries.

Wanted.

The address of every florist, gardener, or owner of a greenhouse in the United States. Would be pleased to have any one favor us with their cards, or list of names, to whom we can send specimen copies of THE HORTICULTURIST.

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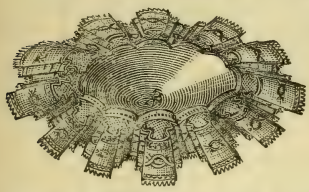
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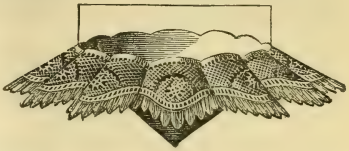
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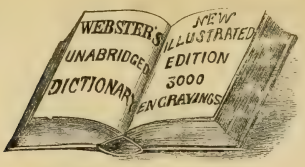
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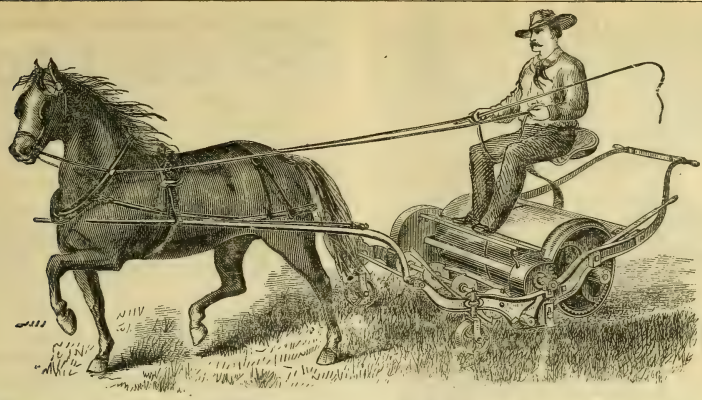
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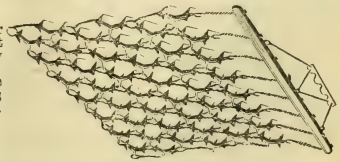
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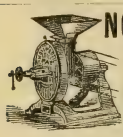


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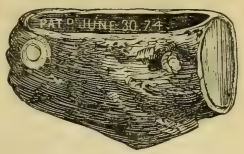
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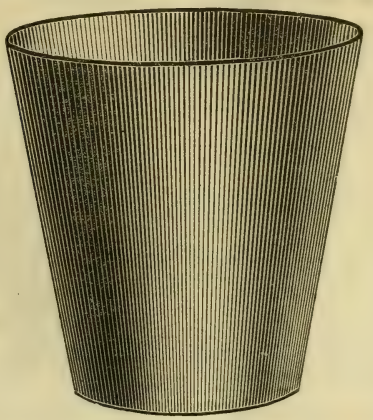


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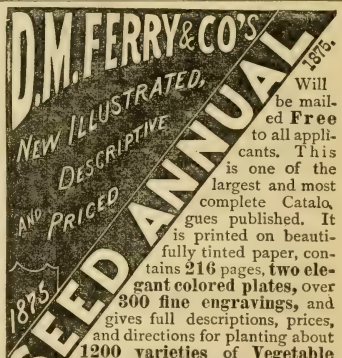
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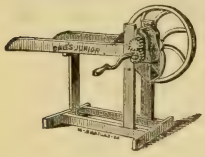
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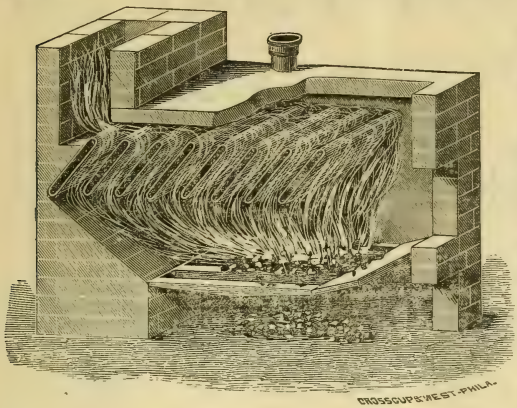
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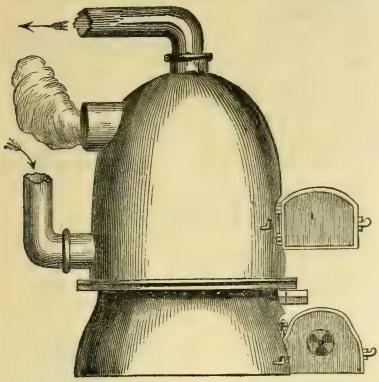


Fig. 1

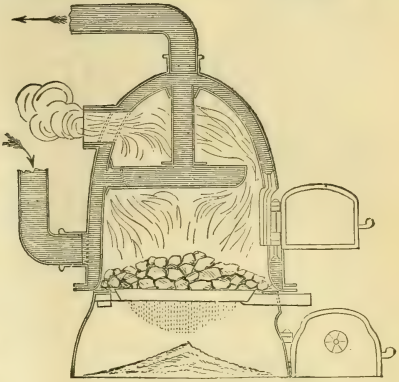


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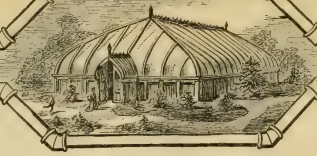
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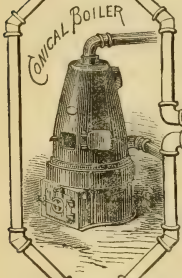
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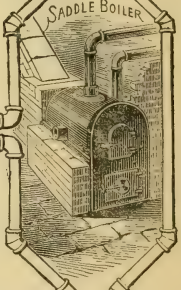
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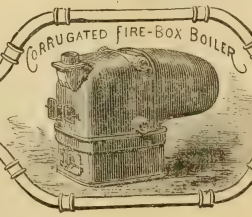
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A JOURNAL OF RURAL LIFE, LITERATURE, ART AND TASTE.



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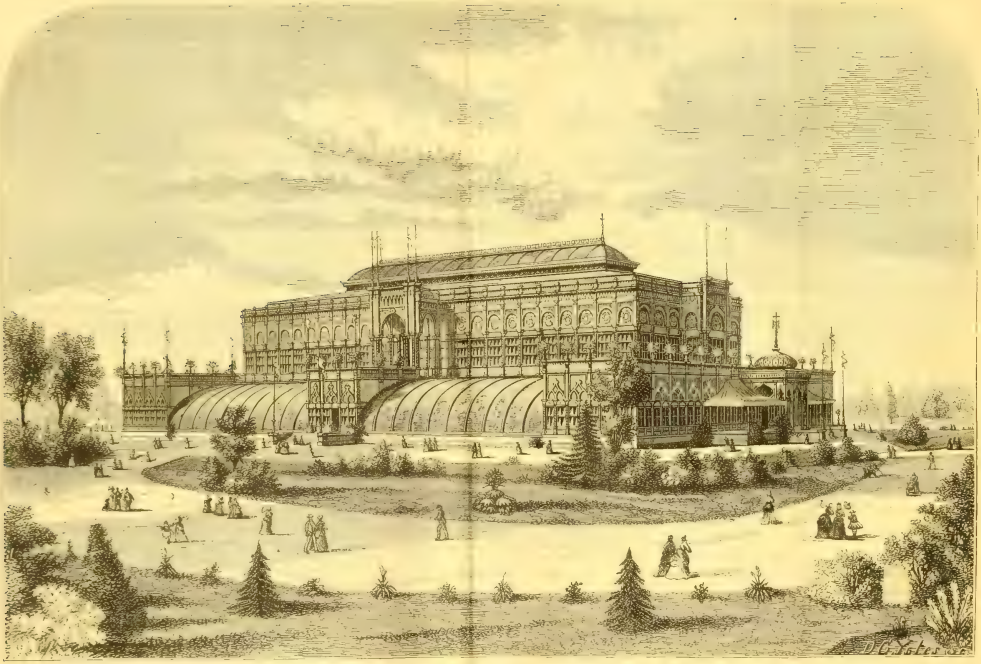
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VOL. 30. APRIL, 1875. NO. 346.

Special Contributions.

[For The Horticulturist.]

The Lilac.

For Lawn and Border Planting, Massing and Grouping, Winter Forcing, etc. A List of Varieties.

BY GEORGE ELLWANGER, ROCHESTER, N. Y.

YOUR chat about Lilacs, in the January No. of The Horticulturist, reminds me of my promise, which I now fulfill. Although you have opened the subject handsomely, and said a good word in its favor, with your permission I will add my testimony to this universal favorite.

The Lilac, which in this country has been rather neglected by the landscape gardener, I consider among flowering shrubs one of the most showy and indispensable for decorative purposes.

In speaking of this charming flowering shrub, I do not mean simply the common purple and white, which, like the Pæonia rubra, justly finds a place in almost every yard, and that are exceedingly ornamental and attractive.

The Lilac has been very much improved by hybridization. Almost all shades have been produced, from white to dark purple, with flower spikes many times the sizes of the common varieties, and more brilliant and profuse.

Planted in masses on the lawn, or for back grounds, it is among the best materials for producing a beautiful and decided effect.

Imagine a clumb of *Rothomagensis* in one mass of reddish flowers; or the *Sinensis*, a shade darker; or the *Virginalis*, with the flowers pure white. In fact any intermediate shade can be selected from the large list of varieties, for planting in masses, or several shades may be intermixed where contrasts are desired.

The Chinese sorts attain a height of 12 to 15 feet. When symmetrically proportioned, and bent down with their weight of fragrant blossoms, they are indeed a charming sight. Planted as single bushes, or among mixed shrubbery, they are valuable and attractive.

The Persian Varieties are of more dwarfish growth than the Chinese, and can be employed advantageously in groups near walks where low-growing shrubs are required. The Lilac is also grown as a standard on a single stem, grafted on itself, the Privet or the Ash,

and in this form is a novelty on the lawn. All the varieties are perfectly hardy, succeeding in any soil.

For *winter blooming*, the Lilac is superb. It can be forced with but little trouble, so as to have it in bloom all winter.

In Paris, it is among the most esteemed of winter flowers, and is always accorded a prominent place in the show windows, from autumn until spring. In this country this interesting and, to the florist, important shrub for forcing, is still in its infancy. I know of only one house in Boston that has entered into it largely.

In addition to the list of varieties you have given, I would mention especially the following old as well as new, as worthy of general cultivation.

Tall-growing Varieties.—Chinese (*Sinensis*). This variety resembles the Persian in foliage and wood, and is one of the most vigorous of its class, often growing 12 to 15 feet high, and as many feet in diameter. Flowers of a reddish purple, very profuse, covering the entire shrub.

Gigantea.—This is a strong grower, with dark rich foliage; flower spikes very large, of a bluish purple. One of the best.

De Louvain.—A strong grower and profuse bloomer; flowers light purple, and very distinct. A fine variety.

Glory of Mt. Hope.—Flowers delicate deep red, shaded with violet; truss very large, distinct and fine.

Sanguinea.—Flowers deep red, shaded with violet; truss very large, A fine acquisition.

Washington.—Flowers very dark purple with a bluish shade; large and fine.

Alba grandiflora.—Very large, pure white trusses, the finest white.

Jasikia.—One of the most distinct species, with dark shining leaves and purple flowers. This variety flowers late, after all the others are gone; is scentless; will form a small tree.

Varieties of Dwarfish Growth, cut-leaved.—A variety of the Persian with delicate cut leaves; very distinct.

Dwarf (nana).—Flowers dark reddish purple; spikes very large and compact.

Persian Purple.—Flowers bright purple; foliage very small.

Persian White.—A variety of the preceding, with delicate white flowers shaded with purple.

Philemon.—Flowers purple lavender, in large spikes; a very pretty dwarf variety.

[For The Horticulturist.]

Pear Culture for Profit.

BY P. T. QUINN.

TEN or a dozen years' experience among pear trees by one who keeps his eyes open to what takes place around him, and his brain active to register the results, is, undoubtedly, the best way to lead to a successful career in growing pears for profit. Among the thousands who have planted pears on a large scale, during the last twenty years, there are few, indeed, in any part of the country, who have not made grave and expensive blunders from the lack of practical knowledge so essential in such undertakings. Such a condition of affairs cannot be looked upon as strange, for twenty-five years ago the practical information on pear culture was exceedingly limited, and like our varieties, most of it was imported from across the Atlantic, and then rehashed for the instruction of the American planters who followed the advice and reaped the rewards. Time and experience are the only agents to remedy such errors as most of us were led into, and the knowledge gained in this way has worked wonders among fruit growers within the past few years, exploding many of the fancy and pet theories of those who wrote on the subject and planted pear orchards in their mind's eye.

One of the most common mistakes beginners usually fall into is that of planting too many varieties on the start. Time is sure to demonstrate the folly of this course, but seldom in season to save the novice the outlay and loss accruing from such an error.

The first step should be to learn, in some way or another, what varieties of pears succeed best in the township or county where the orchard is to be planted. Then find out from the fruit dealer, in the nearest market, if such sorts are favorably known to consumers, for if

not, no matter how superior the quality of the fruit may be, nor how vigorous and fruitful the trees may prove, it will be found an unprofitable business. When these *two important* inquiries are satisfactorily settled, it is a safe rule to be governed by, say in an orchard of five hundred trees, not to plant less than one hundred trees of any one variety, and under no circumstances to exceed more than ten or a dozen kinds, no matter how extensive the orchard may be, if the object is to make money.

This brings the subject up to the point of the relative merits for *orchard* planting of dwarfs and standards. My practical experience for the past eighteen years, in growing pears for market, as well as my observations, during that time, both at home and abroad, has long since settled the question, very conclusively in my own mind, of the infinite superiority of standards over dwarfs for orchard planting. Heretofore in writing or speaking on this point, I have held to a single exception, and that was the Duchesse d'Angouleme, when planted as a dwarf, and deep enough to strike roots from its own body, yielded an equal number of specimens, and of a larger average size than standards of the same variety. Some years back I instituted an experiment in the orchard for the sole purpose of testing this matter, for my own satisfaction, and, with the results, I am now fully convinced that standard *Duchesse*, grown under the same kind of high culture as dwarfs, will bear and yield equally well, while the standard's trees will outgrow the dwarfs, at least a third in six or seven years, thus giving more surface to produce fruit. The early bearing of dwarfs, say in two or three years from the time of planting, instead of being an advantage, is, according to my experience, a serious misfortune, and it should be carefully avoided. It is short-sighted economy to allow pear trees, when planted for profit, to bear any fruit until six or seven years in place. By that time, and following a judicious system of pruning, with a few exceptions, standards can without difficulty be brought into bearing.

In our capricious climate, close planting and low heading are more important to ensure the health, vigor and fruitfulness of the trees than is generally supposed. Pear trees suffer most from strong winds when they are in full bearing, and the specimens nearly or quite grown, when the branches are weighing down with the burden of fruit. Fall trees, exposed to a September northeaster, the fruit is whipped off, and branches broken, while in orchards closely planted and low headed, each row of trees protects its nearest neighbor, and the danger is trifling, if any.

Ground that will produce a fair crop of corn, or, say, 150 bushels of Irish potatoes to the acre, will be found quite good enough to grow pears. On land of this character, properly prepared, the distance apart should not exceed sixteen feet in either direction, and in some exposed localities twelve by sixteen feet would be even more preferable. While the trees are young and not in bearing, corn, potatoes, or root crops can be grown to advantage between the rows, provided sufficient manure is added, annually, to keep the ground in good heart and up to a certain standard of fertility. It *will pay* to use fertilizers liberally among young growing pear trees. In fact it is all-important that during the wood-making period the trees be kept thrifty.

To save trouble and some expense in labor, young pear orchards are often sown down to grass, but seldom, if ever, with profitable results. At least this has been my experience, and up to the present time I don't know a single exception to the rule, so far as my personal observation extends, where the grass theory has been a success in either young or bearing pear orchards, and I have tested it faithfully in our own grounds.

In pear growing for profit, one will be woefully mistaken if he calculates to make a fortune in a few years. But where the orchard is under intelligent direction when the trees come into bearing, taking one year with another, it is within bounds to count on thirty per cent. profit on the capital invested. Of course, I could instance many cases where the returns were very much larger; but there are also many that fall far below the figures named.

The Greenhouse.

Greenhouse for April.

AFTER the long, severe winter we have passed through, it is more than probable that some plants have suffered either from too much fire heat, or from cold, if the heating apparatus was not of the best construction. In those gardens where one house is expected to grow all kinds of plants, it has been unusually difficult to manage the temperature to keep all the plants in fair condition, for it has often required all the fire heat the apparatus could supply to keep out frost; and although the temperature did not range high, yet the strong fire heat is very injurious to such plants as verbenas and pelargoniums; and under such circumstances, plants in flower do not retain their beauty nearly so long as when less fire heat is required to keep the necessary temperature. We frequently see the smallest quantity of pipes allowed when a greenhouse is built; but this is very mistaken economy, for independent of the extra care and attention required to keep enough heat in ordinary cold weather, the extra coal consumed would often pay for another row or two of pipes in one season, to say nothing of the failure of heat on the first extra cold night, which may spoil or give some of the best plants a check which a season's good cultivation will not recover; and as a rule, the poor appearance of the plants is generally referred to the gardener's want of skill and bad management. None of us are perfect in everything, but it is not pleasant to be blamed for faults entirely out of our control.

Last summer a Western florist tried to convince us that two rows of pipes gave more heat in a house than four, for the very simple reason that the boiler had less work to do, and made the two rows hotter. That we can naturally enough understand, but our not very limited experience has taught us that a flue or pipe too hot to be handled is not only undesirable, but very injurious in a greenhouse. We would rather put in six pipes than reduce to two, and see that there was a boiler powerful enough to heat properly the extra pipes on the coldest night which had been known in that district; for although every winter the full power might not be required, the very cold nights are sure to come occasionally, when the comfort of sufficient heating power is very satisfactory.

A grower of a general collection of stove plants, including many valuable specimens, informed us that he could not keep a temperature of more than forty degrees in his house this winter, with the hardest fires he could make. This would do well enough for verbenas and geraniums, but is very injurious to many delicate tropical plants. In fact, if the plants did not receive very careful treatment previously in preparation for such a low temperature, many delicate species would probably never recover, although they might not die outright at once. It must not be understood by this that we advocate a very high night temperature in winter; on the contrary, we give many plants much lower temperature than is usual by general cultivators. But we have at all times advocated plenty of heating power, so that, when a few cold days come, it is possible to obtain a fair average heat without burning the house down, or making the water boil in the pipes.

Orchids should now be rooting freely, and many species be also making a rapid growth. The plants will require more heat and moisture, both to the roots and also in the atmosphere. A good syringing over the foliage must be given on bright days, being careful to use water the same temperature as the house, and do not allow the water to lodge in the young growth; it will cause decay. Shade from bright sun, but do not use a very thick shade; it weakens the plants, and they do not flower so well. We prefer the sacrifice of some color in the foliage to a very green watery growth.

Dendrobiums which have done flowering should now be repotted, if necessary, or surfaced, if potting is not required. Some of the late *nobiles* will still be in full beauty, if kept cool. These can be seen to after flowering.

A good, brisk, moist heat is necessary, if fine, strong shoots are expected. After the growth is finished, these plants will do in any greenhouse, if kept dry. This latter treatment does not apply to the evergreen species from hotter districts, although they will all do in a moderate heat during the winter months, if little water is given. The pendulous species must have larger baskets, if necessary, or be surfaced, if a shift is not required. Some good living spagnum moss is best for surfacing these; it is clean, and the plants root in it freely.

Cattleyas, of the Mossaii varieties, will be now commencing to flower. Care must be taken, in syringing and watering, not to wet the flowers, or to allow water in young shoots. A careless hand with the water-can will soon do a great deal of mischief at this season, and the trouble is, it cannot be detected until the damage is done. Any plants of the Trianæ section which did not receive attention when the other species were potted, should be attended to at once. This species, and also Schilleriana, are very impatient of stagnant moisture at the roots. It induces decay, so must be guarded against by careful watering.

Lycaste Skinnerii will now be growing and flowering freely. These plants require plenty of water and less shade than many other orchids; but under glass, few plants will stand the full sun in this climate. This is one of the best orchids grown. It usually flowers more than once a year, and the flowers last from six weeks to three months in beauty.

Lælia anceps and superbiens will now be about out of flower, and should be rooting freely and commencing to grow. It is necessary to obtain an early growth from superbiens, for its large shoots require a long season to mature, if strong flower stems are expected. It may be noted that this species will not flower when the plants are small. It requires large, strong pseudo-bulbs to produce its immense flower shoots. The same rule also applies to Schomburghias, a class of orchids which finds little favor in Europe, from their shy blooming qualities. In that case there are two reasons for these plants not flowering: they do not get sun enough in their dull climate, and seldom obtain water enough. In this country there is no difficulty about their blooming when the plant is strong enough; and we consider *undulata* a very desirable plant, with thirty or forty of its curious flowers on a spike.

Cypripedium insigne, if not already potted, and the plants require larger pots or pans, should be seen to at once. These plants being terrestrial, do not require raising above the level of the pot or pan, and about one-third full is enough drainage. A heavier soil is also best; it holds the moisture for a greater length of time, and obtains stronger and better foliage and flowers. We use half rough peat and half loam, with a little dry, decayed manure, and a good sprinkling of coarse white sand. This, with plenty of water when growing, and a moderate supply when the growing season is over, will grow these plants well.

Azaleas will now require abundance of water, if fine flowers and strong growth are expected. If any plants have been overlooked and allowed to get very dry, it is advisable to place them to soak in a tub of water, for it is almost impossible to get these plants thoroughly moist, if allowed to become very dry, by any other plan. Give the growing plants a good, warm, light place, and syringe the foliage well on bright days. Plants in flower must be kept as cool as possible, and shaded from bright sun, which not only spoils the color of the flowers, but reduces the time the bloom should last. If necessary to repot the early-flowered plants, it should be done at once, or the pots will not be well filled with roots this season, and the next year flowers will be few.

Camellias, with the exception of candidissima, will be generally out of flower, and should be making a rapid growth. If the blooming season has not been early enough, now is the time to force them forward by extra heat. This plant will not bear much forcing in the autumn. If strong heat is given them, the flowers will be small, and many of the buds drop; but at this season, extra heat will do no harm, and the earlier the growth is

complete and buds set, the earlier will the flowers open in the fall. The plants which are planted in the open border should have the soil carefully loosened with a fork, without disturbing the roots, and if necessary, any sour surface soil removed, and replaced with fresh. This allows free passage for the water, of which the plants require a large quantity at this season. If any plants are found dry, give them several good soakings, for strong growth must not be expected if the plants are dry at the roots. The plants must be shaded from bright sun, which is very injurious to the young leaves. A thin coat of whitewash over the glass is as good as anything; it is easily removed, if necessary.

Chinese Primulas will be generally out of flower by this time, and will require less water, and must be placed in a cool, shaded position, but not where they will be forgotten, for this plant will not do much if neglected.

Primula japonica will now be in flower, and will require a large quantity of water, and fumigating with tobacco occasionally, for green fly is often troublesome at this season.

Cyclamens will now be in full beauty, and must have moderate shade, and be kept as cool as possible, with abundance of water at the roots. Mark the colors and best varieties for saving seed.

Zonale and other geraniums will now be in full beauty in the greenhouse. Many varieties are very fine for this purpose, although, from not being adapted to our hot summers, of no use for planting in the open ground. A few cuttings rooted now will make good plants for flowering in pots in the fall.

Pelargoniums will be now showing bloom, and require more water, with an occasional watering with liquid manure. Give as much air as possible, to keep the plants dwarf and healthy, with an occasional fumigating to prevent green fly.

Cannas and Caladiums for outside decoration, if not already done, should be potted at once and placed in a warm position; but do not give them strong heat, for unless well hardened before planting out, the plants suffer much, and do not start so well.

Castor Oil Plants.—A few seeds should now be sown to obtain good plants for planting out at the end of May.

Coleus must be propagated for the above purpose. A few distinct varieties are better than a large number of sorts. These plants become strong and well established from cuttings in a very short time, at this season.

Propagating in general should be now finished of those plants required for decorating the flower garden. But if, after examining the stock, anything is found to be short, no time must be lost in increasing the stock, or the plants will be small and weak, and after planting out, there will be many blanks and failures. Remove all hardy forced plants from the greenhouse as soon as their floral beauty is past, to make room for other plants, and also to keep a neat and cheerful appearance. Such plants can be placed in a cold frame, if worth keeping, or be thrown away at once.

Marantas must be now potted and divided, if necessary. With many of the varieties it is not necessary to grow large specimens to obtain the full beauty of the leaves, while others do not develop their principal colors until of large size. When room is limited, and only a moderate heat at command, a few of the best small growers can be nicely managed in a glazed frame inside the greenhouse. Such a frame is also useful for raising a few choice seeds or cuttings, and growing a few choice young ferns and selaginellas.

Ferns.—Any plants requiring fresh potting, which had not commenced to grow when the general stock was done, should be seen to at once; for if the roots are much disturbed after this time, the young growth is sure to suffer. See that no insects get established. Green fly is sometimes troublesome on young growth of adiantums, and will deform the leaves if not destroyed. The best way is to lay the plant on its side, and give a gentle syringing with weak tobacco water; for these plants are very impatient of smoke, and are easily injured with any strong mixture, and continual wetting the foliage turns it brown and unsightly. These plants must be shaded

from bright sun, and the air kept as moist as possible; but ventilation is very necessary, if draughts are prevented blowing on the plants.

Hothouse Plants generally will now be growing freely, and require much more water, both at the roots and also over the foliage. But do not keep a close, confined atmosphere; this only induces a thin, weak growth, and with flowering plants a want of flowers. Plants generally will require shade from bright sun, with the exception of such things as Crotons, Allamandas, Pandanus and variegated Pineapples; but care must be taken that the glass is not of inferior quality, or the foliage will be covered with brown spots, from the glass acting as a lens and burning the leaves. Many species of palms make a much finer growth under partial shade from the sun, and some species, such as Geonoma pumila, are injured with the sun in February, and would be completely spoiled with a short exposure to the bright summer sun; but such plants as Achmeas and Tillandsias will stand as much sun as the Pineapple. There are but few orchids which do not suffer from full exposure to summer sun in this climate, under glass, even though growing in full sun in the tropics.

The proposed new conservatory in Central Park is not to be built, according to the New York *Times*. The reason given for abandoning the project is, that it will not only cost a large sum to build, but also a large expense annually to keep it up after it is built. Both these reasons are no doubt perfectly true, and no doubt the times are bad and money scarce, and no doubt also there has been money enough pocketed by dishonest men in office to cover the entire park with glass, so there is not money enough left in the city treasury to build and keep up one moderate-sized house. It will be no doubt best to wait. The future managers may have judgment enough to place the sight in a more reasonable place, and be satisfied with a single story building.

It has also been discovered that a large expense has been incurred in preparing plants for the proposed conservatory. This will be discontinued, and the money and energy spent in plants for the decoration of the grounds. This is a capital plan, if carried out, for lately there has been nothing attempted in the way of summer flowers, except a few plants at Mount St. Vincent, a part of the park ninety-nine out of every hundred visitors never see. Why cannot some fine masses of various handsome herbaceous plants, and also subtropical foliage plants in groups, not to interfere with the open turf or trees, but only to add to the permanent beauty of the place? This might be done at a comparatively moderate expense, and add much to the beauty of the park, if this expense is not more than the treasury can afford.

Perhaps, when New York views the fine conservatory built by Philadelphia, it will be considered necessary to do likewise; or it may be possible they are only waiting to copy the plans of the celebrated builder and the National Horticultural Society in the latter city.

White Carnations

That Sometimes Show Color in their Flowers.

BY A. VEITCH.

THE fact that some of the best varieties of White Carnations frequently produce flowers with more or less of color, is invested with considerable interest and importance to those who esteem them chiefly for their purity. In endeavoring to account for such freaks, and at the same time suggest how to prevent them, it may be as well to state first, that as petals and leaves are in morphological accord, what is characteristic of the one set of organs, is to some extent true of the other.

As regards leaves, we know from the investigations of Mr. H. C. Sorby and others, that no less than ten different-colored principles have been obtained from them, besides chlorophyl; in some cases one or other pure and simple, in others two or more combined, but in all so proportioned as to give to the leaves of every species of plant its own peculiar and distinctive shade of color. Chlorophyl most largely predominates, and hence the prevailing color is green. It is greatest in excess when leaves attain their full size, and be-

fore they begin to fade; but even then, should adverse influences interpose to enfeeble their energies, this grateful color is suddenly dimmed, but only the more clearly to reveal whatever other coloring matters they may contain. This is still more strikingly displayed in the fall, when those tints shine out in all their variety and beauty.

In addition to these changes and their effects, there is yet another which has been aptly called by Mr. Sorby "the temporary fading of some leaves when exposed to the sun." He says "his attention was first called to a diurnal change in the color of a kind of moss commonly grown in hot-houses, and subsequently to a similar change in a tropical species of Maidenhair fern. In both cases the color of the fronds, after the darkness of night, was deep green, but after exposure to the bright sun of day, it was a far paler and whiter green." The true explanation of this, he seems to think, is, that "exposure to bright light causes both granular and amorphous chlorophyl to collect together at the sides of the cells, instead of being more evenly distributed. The result of this is, that a much larger relative proportion of white light is reflected, and the leaves or fronds appear of a paler and whiter green."

Accepting this view of what takes place in leaves or fronds as correct, there seems no reason to doubt but that similar changes take place in many kinds of flowers, for they, also, show most color when grown partially in the shade. This is well stated by "Ruralist," in HORTICULTURIST for December, 1874, when speaking of Phlox Isabellina. "This species," he says, "possesses peculiarities of its own; it delights in the morning sun, and noon and afternoon shade. The petals of those that had the morning sun and afternoon shade were thicker, larger, tougher, and more of deep yellow than those fully exposed to sunlight all the day. The difference, as stated in this case, and in leaves or fronds under similar conditions, is, that in the leaves chlorophyl is that upon which a change is wrought, and zanthophyl, or other coloring matter belonging to this group, in the flowers. And besides, we know that colored compounds in leaves, when more and more developed under the influence of light, are more and more easily decomposed by the action of light and air, when no longer parts of living plants, but dissolved out from them."

It is not asserted that coloring matters exist in all flowers that are white; but if not present in some, they can, under certain conditions, be introduced; and if negatively present, they only require the action of some agent —mechanical or chemical—to be revealed. But as this can only be settled by one or other of the modern methods of analysis, we hand it over to those "whom it may concern," and all the more willingly, as it is with facts rather than with hypotheses we have to deal.

Some of the facts are these: A carnation like the one known to florists under the name of Louise Zeller, is white at all times and under every mode of treatment, which seems to indicate that the cells of the petals contain a purely neutral juice, and therefore white light only can be reflected. But there are others not so constituted, for they sometimes show color in their flowers. Notable among these is President Degraw, a variety so well known and so much esteemed, that notwithstanding this drawback, it is more generally grown than any other. It is in the winter season that any tendency to sport is manifested, and this helps us to the conclusion that want of light has much to do in causing it so to act. This view receives still further support from the fact that vegetable coloring principles can be "decomposed by light in the same manner as when dissolved out from them by alcohol or other solvents." From this the cultivator can see the propriety of keeping this variety of carnation, as well as others which show similar tendencies, where they can receive the greatest amount of light possible during the winter months. By strict attention to this particular, and otherwise treating the plants so as to maintain their constructive energies in full play, he will be able to keep up the flowers, as regards whiteness, to the full standard of his wishes.

New Haven, Conn.

Garden Gossip.

Suggestive Notes.

Double Geraniums.—It seems a very few years since the first of this class was introduced, and now it has its full share of novelties every season, in common with the older sections of florists' flowers. And we are not limited to colors either, for the range of hues extends over the crimsons, pinks, salmons, whites (or nearly so), and mingled tints.

One whose business it is to introduce all these newer introductions, and hence study their several characters, cannot but note the marked and rapid improvements that annually take place. In the *Jewel*, which is a very dwarf, compact-growing plant, we think we shall have an acquisition for bedding superior to anything of its character. In England, last season, which suffered from drought, this charming variety made a grand show, the round trusses of deep crimson, perfectly double flowers standing up well above the dense mass of bright green foliage, in a very attractive manner. *Asa Gray*, we are pleased to add, bedded beautifully in some sections of this country the past summer, and if it does equally well everywhere, we can thus have a new feature to add to our grounds.

But judging from the reports received from abroad, we are to have a new double variety, or rather semi-double—for it is not quite full —which will eclipse in size any of the varieties in existence. Mr. Laxton, the originator of so many fine peas, has raised a new geranium, whose individual flowers measure upwards of two inches in diameter; color bright scarlet. The truss is said to be of enormous size, and the plant a thrifty grower. It was awarded a first-class certificate by the Royal Horticultural Society of England, and has been named *Emily Laxton.*

Mr. Laxton has also originated two others, which are said to be unusually fine.

A Good Vegetable Garden should be an attractive feature in all well regulated country homes, and yet how often is it the very opposite of neatness and productiveness! From the earliest times, in some localities, this important spot has been turned over to the female portion of the household with true sovereign contempt by the lord and master thereof—not from indolence, we presume, as many a "forehanded" farmer is guilty of this neglect, as well as the thriftless countryman who tends to no part of his farm property. We repeat, it pays to cultivate the vegetable garden or "truck-patch" carefully and skillfully, as it does any branch of out-door country work; and many a man's character can be read aright by simply glancing over the paling that encircles his garden. As soon as the ground is settled in spring, it should be covered with rich, *well decomposed* manure or compost. We say well decomposed, because it is a mistaken idea to apply manure from the stables without first undergoing fermentation at least. The fertilizing material should be ploughed or dug in deeply, but not until the soil has become reasonably dry and mellow, as here is a point upon which many gardeners make a great mistake. Soil once cultivated whilst wet in early spring, does not recover from the effects throughout the season, but remains more or less cloddy and rough. Every one should have a side-hill slope, facing south, for early vegetables. Here may be grown a few extra early peas, beets, radishes, lettuce, onions, etc., as well as a few rows of Early Rose potatoes. Such a convenience pays well, as a few days is a great blessing in the way of nice, fresh dishes of green vegetables in advance of the usual season. If the soil should be light and sandy, so much the better, but it must be thrown up in terraces to prevent washing by the rains. This location will not answer for the later crops, as the hot, dry weather of midsummer will in all probability burn, or at last seriously injure them. At all events it pays to have plenty of good vegetables at all seasons, and to obtain this, the owner must pay constant attention to his garden, as he would to his fields. The former is equally as important as the other, and requires labor as well to reap a full measure of success.

Neglected Magnolias.—Every lover of

trees is willing to acknowledge that in this genus we have some of the most beautiful species and varieties to be found in the flora of the world; and yet, while we have been assiduously cultivating the Cucumber Tree (*M. acuminata*) and the Chinese White (*M. conspicua*), as well as some of the choicer hybrids, such as *Soulangiana speciosa*, *Alexandrina*, etc., there still remain several beautiful species that are well calculated to adorn our lawns and pleasure grounds. Chief among this latter class is the Ear-leaved Umbrella Tree (*M. Fraseri*), known to many as the *M. auriculata*, a tree of medium or rather large size, of regular outline, with exceedingly handsome large foliage and beautiful flowers. In the Middle States it is never injured by the winter, and we know not of an objection that can be raised against it. It is quite difficult to increase by means of grafting and budding, but the seeds germinate equally as free as those of its cotemporaries.

The *Yellow Cucumber Tree* (*M. cordata*), although a native of the Southern States, succeeds perfectly well as far north as Boston, and is emphatically a charming tree. The foliage is of an oval outline, slightly heart-shaped, downy beneath, and of medium size. The flowers are four or five inches in diameter, of a rich golden yellow color, and are produced occasionally during the summer and autumn. It never forms a tree of large size, but the outline is regularly globose, and more compact than many of the other species.

The Umbrella Tree (*M. umbrella*), usually termed *M. tripetela*, is another small-sized tree with very large foliage. The flowers in this are rather attractive, being large, creamy white and distinct. It is entirely hardy, readily reproduced, and forms a fine specimen for grounds of limited size.

The lovely little Sweet Bay (*M. glauca*) should receive more attention, as the exquisite fragrance of its flowers renders it invaluable for small places, at least. The Great-leaved magnolia (*M. macrophylla*), wherever it will stand, makes a noble specimen, as the leaves are frequently three feet in length.

Summer-Flowering Bulbs.—Not a few florists commit the error of scattering these singly here and there, over the surface of a large bed of mixed flowers, when no class of plants makes a finer show in masses than the tuberose, gladiolus and tiger-flower, each in a separate bed, so that nothing may detract from their beauty. The soil should be light, moderately rich and deep, and in planting, the bulb should be protected by surrounding it with pure sand. We have seen groups, composed of three or more circles, each set with different varieties of gladiolus or tiger-flower, that made an unusually attractive show. Lilies started in pots, under glass, especially the *L. auratum*, when massed in a small bed on the lawn, always show to better advantage than if scattered through other plants.

As the plants increase in height, they will need supports, and this must not be neglected until they sway about in the wind, and become loosened from the soil. A neat stake, painted green, may be procured from any seedsman, and the style with white points has this advantage, that each variety of plant may be carefully labeled, using a hard black pencil on the white surface.

Mulching has been recommended for bulbs; this, however, is a dangerous practice in the hands of an unskilled gardener, as bulbs are easily rotted, or badly injured by excessive moisture. The only method to be used is scattering over the surface of the bed a very thin coat of old hot-bed manure or light rich compost. This, while enriching the soil, has a tendency to promote moisture sufficient for healthy growth.

Beautiful Shrubs.—There seems to be a prevalent opinion that azaleas require shade, as well as peaty soil, to insure health. That this is a great mistake, the hundreds of fine specimens in various parts of the country fully testify. Any good turfy sod, chopped fine, and, if clayey, drained, will answer. They do prefer a light porous soil, with a good mulching of leaves to keep the roots cool and moist, and if partially shaded, none the worse; but they will thrive in the clear open sun in a satisfactory manner without fear of failure, if the proper conditions at the root be observed.

In the whole range of flowering shrubs there is nothing that will make a more gaudy show than a bed of the finer hybrids of Belgian azaleas. Of every conceiveable color excepting blue, tinted, striped, mottled, and with even double flowers, one cannot readily imagine where any improvement can possibly be made.

There is a very pretty little species, by name *A. amœna*, which has proven very satisfactory in the open ground as well as for pot culture. It forces well in the atmosphere of a room, although rather dry for perfect health.

A Useful Book.—We have received the prospectus of a new work about to be published in London, entitled "A monograph of the genus Lilium," by Henry J. Elwes, F.Z.S., F.L.S., illustrated by W. Hood Fitch, F.L.S.

The author announces that he is to have the valuable aid of such excellent authorities as Wilson, Leichtlin and Baker, names familiar to all lovers of the lily family; and the illustrations will be copies of the famous set of oil paintings now in the possession of Herr Max Leichtlin, of Baden-Baden, and others. Mr. Baker, of the Royal Herbarium, Kew, England, has carefully elaborated this genus, and carefully described all the known species in the various publications during the past few years, so that we may reasonably expect a splendid, as well as a very valuable, work. Wood cuts and colored drawings of the bulbs, seed-pods, etc., will be added to illustrate the more technical descriptions, and the scientific accuracy of the same may be relied on.

The work will be completed in six parts, each containing a large engraving reproduced from a photograph of the scenery of the countries where lilies are most abundantly found.

The Lawn.—As soon as the frost is entirely out, and the soil dries somewhat, it is a good idea to start the roller to work. There is no better time to level all the little inequalities of the surface than at this season. If manure has been scattered over the turf last autumn, the coarser portions must now be raked off, and plaster (calcined) sown over the surface thinly. Pure guano and bone dust are excellent fertilizers for grass, and an application of one or both shows plainly in the increased intensity of color of the crop. Some will not apply fertilizing material at all, giving as a reason that the grass grows fast enough. True, but that is not the only feature that we should endeavor to produce, we want a thick, dark green turf, and we must manure to get it.

Early Bulbs.—Be careful to clear off the covering from beds of tulips, crocuses, hyacinths, etc., a small portion at a time. If taken off at once they may suffer, and if allowed to remain on too long it weakens the plant, drawing it up yellow and sickly-looking. Besides, one longs to give the rough-looking beds a neat appearance in spring, and this is about the first stroke of gardening that requires attention. We pity the dweller in the country who has no early-blooming flowers to keep pace with the bright spring days.

Planting Cucumbers.—An improved way to plant cucumbers is to plant the seeds as close together in the hill as in ordinary planting. If short of ground, make the hills from two to three feet apart, drive six or more stakes or laths, four or five feet long, close around the plants, letting the top ends flare out. Tie common twine around the stakes, from one to the other, to hold the vines as they grow up. I find this way of training the vines upward much better than letting them run on the ground, as not much room is required, and it is much easier picking the fruit. —*California Farmer.*

All Saints Cherry (*Cerasus semperflorens*).—This is a valuable, ornamental, low tree, drooping gracefully, especially when old, and producing singly numbers of brilliantly-colored fruits on long stalks; also drooping elegantly from the branches. It is a capital lawn or pleasure-ground tree, and grows from 12 to 28 feet high. It derives its botanical name from flowering several times during the summer.—*Garden.*

A Fine White Rose.—"Madam Plantier" is one of the best of the new white roses. It is a profuse bloomer, has fine foliage, and the plant is represented as being as hardy as a common brier.

The Flower Garden.

Sowing Flower Seeds.

BY MYSTIC.

THIS article is written for the benefit of amateur gardeners, who constitute most of the readers of THE HORTICULTURIST.

The greater part of the flower seeds sown by amateurs never "come up." What is the reason? The seeds are not good, says the sower; the seeds are not properly sown, says the seller. Which is correct? It is too true that worthless seeds are sometimes knowingly sold by unprincipled seedsmen, either *en masse* or mixed with good ones.

A rich friable loam, neither dry nor very wet, is the best soil for a flower garden. Work the soil over and over until it is thoroughly broken and free from lumps—following the spade or fork with a rake. Deep cultivation and a sunny spot are requisite for the highest success of most plants. Unsuitable soils may be converted into congenial ones. If the soil is clayey, heavy or cold, mix with it sand and thoroughly-rotted stable manure. If it is sandy or too light, work in pulverized clay, swamp muck properly prepared, decomposed leaves or other vegetable matter from the compost heap, plaster and old cow manure. The soil, if not already warm, should be dug up and warmed by the sun a few days before sowing.

When is the proper time to sow flower seeds in the open ground? It cannot be determined by the calendar. The character of the plants, the advance of the season and condition of the ground must decide. For tender and half-hardy plants, the season should be so far advanced as to have the soil very perceptibly warmed by the sun and free from late frosts. The seeds of hardier plants may be sown without injury somewhat earlier. It is better to sow a month late than one day too early. Avoid sowing when the surface of the soil is muddy or very wet.

The proper depth for sowing seeds depends upon the character of the seeds and the degree of warmth and moisture of the soil. Two conditions of the soil are absolutely necessary for germination—warmth and moisture. Therefore, sow deep enough to keep the seed moist, and near enough to the surface to keep it warm. The depth must vary with the conditions. No uniform depth from an eighth to a half of an inch, according to the species (which would be proper in favorable conditions), can safely be adopted in all cases. If the soil is naturally cold and wet, sow (especially fine seeds) close to the surface; if light and dry, much deeper. If you sow deep in cold, wet soil, the seeds rot; if close to the surface in dry soil, the seeds will not germinate. If your land is too heavy and cold, scoop out the spots for sowing, and fill in with sandy loam or light soil. Be careful to cover with pulverized earth free from pebbles. In covering, use your fingers, without gloves, by which you can detect any improper substance. Seeds should lie below—fine seeds only just below—the line of moisture; and the line of moisture should continue over the seeds until they sprout and the plants become well established. If a seed sprouts, or is thoroughly swelled, and then becomes dry, its vitality is gone—the plant is destroyed in embryo. This is the prevailing cause of failure in dry soil, even with persons of considerable experience. Novices almost invariably sow too deep, under all conditions. Avoid the great error of sowing too thick; and if the plants should come up too thick, thin out immediately, before they become spindling and constitutionally weak. After sowing in light or dry soil, press down the surface firmly; if the soil is *very* light and dry, press it down about an inch, using the back of a hoe to advantage.

If there is danger of the earth drying down to the seeds (as there generally is in light soils and sunny weather), keep the surface moist by artificial means. Daily, and oftener if necessary, use the watering pot with a fine rose, or sprinkle the water with your hand in small drops. Water in the middle of the forenoon, but not in the evening or towards sunset as you would plants in hot, dry weather. Warm soft water is best. If cold water is used, ap-

ply it in exceedingly small quantities, at short intervals of time, until your beds are sufficiently wet. Much cold water, poured on at once, will prove injurious, if not fatal, to vegetation. Even young plants of hardy species may be killed by a large quantity of very cold water.

To prevent the surface of the ground from becoming too dry, cover it, until the plants are up, with brush, brown paper confined at the edges, or boards resting on bricks, or sticks driven into the ground. Young, delicate plants may thus be shaded to advantage during the scorching heat of the midday sun. Shading through the whole day will make them weakly.

Medford, Mass.

Roses.

Their Cultivation, Varieties, Etc.

By JAMES PENTLAND, Baltimore, Md. Read before Maryland Horticultural Society.

"Proud be the rose, with rains and dews her head impearling."

VERY few persons know how to cultivate a rose in order to bring forth all the latent beauty contained in the flower. Many are content, when they buy a rose from those who have them to sell, to take it home, dig a small hole in the ground in their garden, put it therein (I cannot call it planting), and leave it to take care of itself; and when they come to look for flowers, find none. And no wonder! It will not stand such treatment, but will wither and die, and then the poor gardener who sold it comes in for the blame.

Now this is all wrong. There is not a flower that grows that requires kinder treatment than the rose, and there is none more deserving, or that will better repay good cultivation, either in a commercial point of view, or for the gratification of two of the five senses, namely the sight and smell.

To grow a rose to perfection, you must, in the first place, find the proper soil in which it delights, which is a stiff, loamy, strong virgin soil—yes, even a clay soil, provided it is well drained, and deep and cool, so that the roots can find their way down into a cool place, in order to get away from the influence of our burning summer suns. In the next place, you must see to it that the soil is properly enriched, for, depend upon it, you will not see a rose in perfection in a poor soil; for, like the grape-vine, it is a very gross feeder. Therefore make your rose ground very rich and deep. Use any well-rotted manure for young plants, and plenty of it; and as your roses gain strength, you can give them almost any kind of manure, even to fresh night-soil. Watering with liquid manure occasionally you will find a great help.

In order to have fine flowers, you will find pruning a very important point in the cultivation, and this part, I am sorry to say, is but very poorly understood by most cultivators, for how often do you see a rose plant snubbed off at its extremity, in order to give the bush a nice, round head of very slender shoots, upon which you see a small, weak flower, not worthy of being called a flower, looking as if it was ashamed of itself (and I don't wonder that it is), instead of bringing out all the beauty of which it is capable.

To have fine, large and beautiful flowers, you must have plenty of good, healthy root-power, and not so much wood; and to obtain this, you must have the conditions previously mentioned. If your rose plant has had those conditions, you will have good, strong, healthy growth from the ground; and in the fall, or very early in the spring, when danger of severe frost is over (I prefer fall pruning, for by pruning then, you make the plant more capable of withstanding our severe frosts, because the late growths made by the rose are too tender and sappy to withstand our severe climate), commence pruning by cutting out all the old wood of the previous year, or at least all the wood of that year until you reach the new and strong wood of this, if the growth has been made upon any of it, as it very frequently will be, unless care has been used while growing. After you have cut out all of the old growth, then commence and reduce the new growth to three or four or more buds, according to the strength of your growth. Strong growing varieties may have more wood left upon them than the weaker growing varieties. If you

follow out these instructions, my word for it, you need not be ashamed of your rose flowers. The remark has often been made to me in the month of June, when the rose is in its best estate, by persons visiting my place: "How is it that we don't have as fine flowers upon our rose bushes as yours are? Mine are larger bushes than yours, and of the same kinds." And the only answer that I could give them was: "They are not properly pruned." "Why," they would reply, "a gardener pruned them, and he ought to know." What a comment upon gardeners! Yes, he ought to know, and a good gardener does know, but the fact is, he is not always allowed to do as he knows it should be done, for many persons are so afraid of seeing their pets cut down too close, supposing it will kill them; and again, many want large bushes, which they can easily obtain, but it must always be at the expense of the flowers; whilst others again desire quantity, and not quality. To all such I must say, "Don't blame your roses for not displaying the full beauty of which they are capable." I shall close this portion of my subject by saying in brief, if you want fine flowers, give your plants plenty of roots and short tops. You can get the former by rich soil and good cultivation, and the knife and good judgment will do the rest.

I now approach a very delicate part of my subject, that is, the best varieties to cultivate.

Now it will altogether depend upon what you want in a rose, before I proceed to enumerate the varieties. Do you want a rose of the most exquisite form, color, smell, strong growth and perfect hardiness, that will only give you such flowers once in the year, or at the most twice?

Then I will have to recommend you to grow the (so-called) Hybrid Perpetuals, which name, I think, is a misnomer. True, they are hybrids, but if the *perpetual* was left out of most of them, it would be better, I think. Do you want a rose tolerably hardy, not too rank a grower, and one that has not much fragrance, but of beautiful form and color, and when in a healthy condition, one that you can always expect to find a flower upon? Then I will commend you to the Bourbon class. If you desire a strong growth, with great clusters of sweet flowers blooming upon the ends of long shoots, you must grow the Noisettes. But if you want flowers to cut for bouquets, for show, for decorations, and for useful purposes generally, and such that you are not afraid to cut and slash at as much as you desire, then you must grow the Bengals or Chinese, as they are called, and in this class there are some beautiful varieties.

But if you want a rose in which you can feel a real enjoyment in beholding its delicately unfolding petals, in inhaling its most exquisite fragrance, peculiar to itself alone, observe its delicate habit of growth, and its constant bloom; whose colors, so delicate, look as if the breath of man would soil them, then you must grow the queen of them all, and it is the variety the ladies (God bless them!) love the best. I suppose the reason they so love them is, because, like themselves, they are so extremely frail, delicate, sweet and lovable, and cannot bear the rough usage that their more robust brothers just mentioned can. These are the Teas, so called, owing to their flowers having the rich aroma of fresh tea.

There are many other varieties cultivated, such as Damask roses, Banksian roses, hardy climbing roses, Multiflora roses, Macartney roses, climbers also, and of this class I may mention the Microphylla, Maria Leonida, Mannetti and kindred sorts. There are not many of this class, however, and the two first named are the best. The Mannetti is much used for budding upon, and makes a fine stock rose, superior to the French dog rose used for the same purpose.

There is one other in connection with the climbing roses that I must not forget to mention, because of its very great beauty, extreme hardiness and rampant growth—growing, as I have seen it do, in one season as much as twenty feet, and also for the further quality, or good fortune, as I should rather say, of having been originated in our very midst. I allude to the Prairie roses, which, for the covering of naked walls and trellises, have no superiors. They were originated by that dis-

tinguished horticulturist whose untimely death we all have deplored. I allude to Samuel Feast, Sr., brother of the Nestor of horticulture in this city, the honored Corresponding Secretary of this society, John Feast, Esq.

The Prairie rose, I think, was originated from seeds of the Michigan rose, either gathered by or brought to Mr. Feast, who planted them. There are two distinct colors, one a beautiful pink, and the other a clear, waxy white. The pink variety is called Prairie Queen, and the other most fitly named Belle of Baltimore. There is one other, called the King of Prairies, a later production by the same grower, a most beautiful flower, not quite so double as the two former, but possessing one fine quality the others lack, namely, fragrance. There have never been any roses sent out that have obtained a wider or more deserved celebrity than those roses, for from Maine to California, in this country, and all over the continent they have been sent, which certainly speaks well for Baltimore and her productions.

Brier Roses or Sweet Briers.—Of this class is one of the finest yellow roses in cultivation, namely, the Persian yellow. Then there is the old Harrisonia, older, perhaps, than I can remember. Celestial Blush Sweet Brier is a variety very pretty and double and sweet, but not much known. The last, though by no means the least, are the Moss roses, some of which are the most beautiful roses grown. Some of them are *called* perpetuals, but if there are such, I must confess I never saw them, the nearest approach to it being the one called Salet, which during the summer blooms occasionally; but I doubt very much if it is a moss rose in the true sense, the buds at best being but slightly mossed. But the real gems of these roses (and gems of beauty they are without question) are the following named varieties: Cristata (or crested). This fine old variety I have placed at the head of the list, for in form of flower, delicacy of color (a peachy pink), and size, I think it excels all of this class; and when in bud, the beautiful calyx, having the appearance of a crest (not properly a moss covering), is extremely beautiful.

The next most beautiful, in my judgment, is the Ætna, which is quite mossy. The buds are large, and just before expanding have the appearance of a crown; it is also a very vigorous grower. Then comes the Luxembourg, or Crimson Moss; Wm. Lobb, a most vigorous grower and fine bloomer, of a dark purplish crimson; Gloire des Mausses, pale rose, outer petals whitish, large and very distinct, and robust grower; Princess Adelaide, pale rose, very large, mossy, and a strong grower, and one that forms a beautiful pillar; White Moss, or White Perpetual (so-called), is most beautiful in bud; it is a very old rose, and one of the first moss roses I ever knew, and has been grown so much that I have sometimes known the mossy appearance of the bud to run out and go back to its original type of a Damask rose.

All the moss roses are very fragrant; in fact, there are none smell sweeter, except perhaps their progenitor, which I think is the Damask. I will close my description of the moss roses by mentioning one other, which is the most mossy of them all, for even the leaf stalks are quite mossy, and the buds are so thickly covered with the mossy appearance, that on that account they frequently will not expand their flowers—it is called Jenny Lind Moss. It is quite scarce. In fact, all of the moss roses are beautiful, and their names are legion, but those I have enumerated are among the oldest and, I think, the best and most distinct. They are all difficult of propagation, with one exception, namely, the Princess Adelaide. The best way to increase them is by the process of budding or layering, to obtain them upon their own roots, or by allowing them to sucker, and thus increasing them, for many or all of them propagate very freely in this way.

A Remarkable Hyacinth.—A very remarkable hyacinth was recently shown at the Crystal Palace, London. The bulb, of the Norma variety, although only a trifle larger than usual, produced ten spikes of fair size, was furnished with well-developed "bells," one hundred and seventy in the aggregate, an average of seventeen for each, and formed altogether a large and beautiful bouquet.

Gardening.

Evergreen Hedges.

BY JOSIAH HOOPES.

THE *Hemlock*, perhaps, combines more excellencies for this purpose than any plant that is sufficiently hardy to withstand the climate of the Middle States. In addition to its color and compactness of growth, there is a peculiar grace in its slender twigs and small leaves which admirably fit it for hedging purposes. Next in point of beauty we should select the *Siberian Arbor Vitæ*, a tree of slow growth, yet so dark in color, and dense in growth as to make it a valuable plant for the ornamental hedge. It is so hardy that our northern gardeners need entertain no fears in relation to its success with them.

We have seen a carefully grown hedge of the *Norway Fir*, or more properly, *Spruce*, than which nothing could be much superior. It bears the pruning shears so patiently, and thickens up so densely, that the sides, with careful management, will soon resemble a green wall, in which there is no opening.

The *American Arbor Vitæ* will stand hard usage with as much impunity as any evergreen in our list. It dislikes its roots, however, to become dry when out of the ground, and if thus neglected during the transplanting operation, it will not unfrequently die. When once established, however, it needs only to be trimmed each season, and nothing excepting a remarkably dry winter, or the ravages of the "basket worm," will mar its beauty. This species is emphatically the economical ornamental hedge plant of America; cheap, easily preserved, and suited to most soils and situations. As a screen for unsightly objects, it will run up tall and slim, thus taking but little space, whilst performing the same duties as its more spreading companions.

The *White Pine* answers a good purpose when properly cared for, and, strange to say, will form a compact, dense mass of foliage, filled with short twigs, if sheared frequently and judiciously. But the white pine is subject to a blight which seems to baffle all inquirers, and when planted in a hedge, should a plant go off occasionally here and there, the beauty of the whole will be marred past all recovery.

It may seem premature to mention a new plant in this connection, but the Japanese *Retinispora obtusa* appears admirably adapted for an ornamental hedge. Its growth and general appearance is so similar to the Arbor Vitæ, that so soon as the plants can be procured at reasonable prices, we predict they will be used extensively for this purpose. Already an enthusiastic horticulturist near Boston has tested the Retinispora for two or three seasons with flattering success, and we believe with age it will increase in beauty.

For the west, the common *Red Cedar* has been recommended, but at the east it is usually worthless, owing to the unfortunate habit of losing the lower limbs; or at least the foliage thereon, which is equivalent. This is to be regretted, as the habit of the tree, and its dark green color, suggest so many features of excellence.

The other members of the Juniper family are no better, as they will persist in shedding their leaves near the ground.

The *Holly* (American) will in time make a good hedge, defensive as well as ornamental, but it has too many faults to recommend. It moves badly, is of exceedingly slow growth, and is too costly: the last being the result of the two others. Still it can be coaxed into something like obedience with untiring patience and perseverance on the part of the enthusiast, who deems nothing too difficult when striving to obtain his ends.

We have seen a very prettily trimmed screen of the *European Silver Fir* in the vicinity of Philadelphia, but we can by no means recommend this plant for the purpose; being tender, prone to lose its lower limbs, and not suited to all soils, yet it is exceedingly handsome with all its faults, as the foliage is of the deepest tint of green, and glistens as if neatly varnished.

The *White Cedar* did well as a hedge plant on the grounds of the late William Reid, at Elizabeth, N. J., but at other points it proved

a failure, showing conclusively that it is affected more or less by the nature of the soil and climate. The specimen, however, alluded to was as perfect a hedge as one could possibly desire, healthy in color, compact in structure, and trimmed with the greatest care; indeed in the very large collection of trial hedges this appeared to be the favorite over all competitors.

We do not recollect to have seen the *Tree Box* and its numerous varieties mentioned for hedging, and yet they are well adapted for the purpose. The general impression that they are of very slow growth is unfortunately too true, but if cultivated generously, and manure scattered over the surface of the soil close to the plants it will make a wonderful difference. The Chinese varieties grow more rapidly than the others, have larger leaves, and are more preferable for hedging; but the *Golden Variegated Tree Box* cannot well be surpassed when free from insects and disease. As a matter of course they stand the shears with impunity.

Some planters wonder why they never have any "luck" with the nice young seedlings removed from the woods and set at once in the hedgerow. They entirely overlook all the circumstances connected with their plants when growing in their native haunts.

Nursery-grown plants only can be relied on for the purpose, and these rarely fail under kind treatment.

The seedlings of two or three years of age require to be cut back severely, planted thickly in light mellow soil, and shaded for the first year. After standing in this nursery-bed for two years, they may be removed to their final destination. But even when thus treated, they are inferior to the plants usually sold by conscientious nurserymen, which are usually transplanted two and even three times, thus insuring a mass of fibrous roots.

After planting, the only trimming necessary to perform is to top the taller plants, and to cut back any side limbs that extend beyond their neighbors. But in succeeding years the hedge may be brought into its final shape, which should never have a flat top to catch the snow; this may do for England, but not for America.

About the Newer Pelargoniums.

BY ANDREW S. FULLER.

A FEW years since when the florists of England began to talk so enthusiastically about their new *Zonale Pelargoniums*, I confess to have thought their sanity was becoming slightly "questionable," else novelties in plants were very scarce. There were doubtless many others in this country somewhat of the same mind, from the fact that the new *Zonales* and kindred varieties made rather slow progress among us for several years, probably because we had become surfeited with the old sorts of scarlet or fish geraniums which are the parents of some of our later and much admired novelties. But true merit will usually assert its place, in the estimation of the masses, no matter what its parentage may be, as it has done in this very old but recently rejuvenated genus of plants.

The florists of England have taken the lead in the production of new sorts, and they may also have a slight advantage of us in making bedding out displays in summer, owing to a more favorable climate for this purpose, but what we lose in summer is more than made up in winter. The hot, dry weather during July and August is rather severe on the more brilliant-leaved varieties, but in winter our almost cloudless skies for days and weeks together, even in the coldest weather, insures a healthy and vigorous growth of plants in the conservatory. If we choose to keep up the temperature of our houses to the growing and blooming point, no injurious results follow in the way of feeble growth, or what the gardeners term "drawn" plants, which would be the case in a less clear atmosphere. Taking this view of *Pelargonium* culture, we have only to divide them into two classes, one adapted to bedding out in summer, and the other for winter blooming or for a display of beautiful foliage. Those of the *Mrs. Pollock* and *Mountain of Snow* types are especially adapted for house culture, and of little value for bedding out purposes, except in some few localities and soils. These are mainly cultivated for their beautiful foliage, the flowers being of a second-

ary consideration, hence they neither come in competition, or in any manner approach upon the field occupied by the more vigorous growing and free-blooming sorts.

It is true there is no vacant unoccupied ground between the most brilliant *Zonale* and the plain green-leaved varieties, for it has all been filled up with splendid sorts, and many of the dark bronze *Zonales* are as vigorous growers and free bloomers as one could desire. But it is well to make a dividing line somewhere, therefore I would say put all the comparatively slow-growing handsome-leaved sorts together, and all the strong and vigorous, whether plain or colored. Then cultivate the one class with especial reference to the development of their flowers, and the other for the leaves. Both are equally desirable for house culture, and, for my own part, I value one as highly as the other, and I will admit that my former indifference to the claims of these plants has now become almost an enthusiasm in their favor.

The introduction of such brilliant-colored varieties as *Master Christine*, *Jean Sisley*, *Leonidas*, *Cham* and *Don Giovanni* are events in floriculture not to be overlooked by those who have an eye for dazzling productions. The double varieties are very showy, especially the bright-colored ones like *Triumph* and *Marie Lemoine*, besides being of a vigorous habit, even stronger than the single-flowered sorts. Among these, we are still in want of a good double white, and although *Aline Sisley* is a step in that direction, it falls far short of a pure white, such as found among the single varieties. But our florists are equal to the task of producing what is now a desideratum among the double sorts, and we shall probably not have long to wait for the pure white, or any other possible color in the genus. A few years since a scarlet geranium flower, an inch broad, would have been considered rather remarkable, but now with such sorts as *Father Ignatius*, a full two inches in diameter is not uncommon. The new shades of colors brought out are as remarkable as the increase in size and form. We have varieties with the loveliest shades of pink, salmon, rose, crimson, maroon, carmine, magenta, and in fact some which might be termed "indescribable queer color," for words would fail to convey any very distinct idea of the peculiar shade or combination or colors.

Perhaps one reason for speaking so enthusiastically in favor of the newer *Pelargoniums*, is that my own collection of a hundred or more sorts have made such a brilliant show during the present severe winter, and to-day (March 8th), while the snow is a foot deep upon the fields, the greenhouse is ablaze with these flowers.

Japan Maples.

BY S. B. PARSONS.

IN the article on "Maples," by Josiah Hoopes, in the last HORTICULTURIST, he describes, very correctly, the remarkable beauty of the Japan varieties. No description can surpass the reality of their charms. About their hardiness, I am somewhat at a loss to understand his opinion. In one part of the article he says, "I have every reason to believe they are not suited to our climate;" and elsewhere he says that some of the varieties "are exceedingly valuable for lawn planting." If the former is his opinion, I would call his attention to the full collection, which has grown luxuriantly for twelve years, in the garden of Mr. Hogg, at Astoria, and which many cultivators have admired.

In our own grounds, some eighty plants, four to five feet high, have been growing two years, and are thrifty beyond question. The adaptation of this family to our climate we think to be perfect.

Garden Notes from the Parsonage.

BY W. H. W.

AN amateur's garden of less than half an acre is rather a narrow premise from which to draw any very broad or positive horticultural conclusions. But yet as the experiences that are gathered, in common with pears, and grapes, and berries, even from such a spot, may be of some interest or help, I send you

a few notes from the lessons taught by my garden in 1874.

1. *Dwarf Pears.*—I notice that the wisdom of planting dwarf pears is still under discussion in the horticultural papers. My limited experience speaks most emphatically in favor of such trees. The largest, most productive trees in my garden are dwarfs. Or, perhaps, I ought rather to say they *were* dwarfs when planted. They were set so deeply (the point of inoculation about four inches below the surface), that they are now probably well rooted from the pear stock, and so practically standards. Some of them are six inches in diameter at the collar, and yield me annually about a barrel each of fine fruit. They are now about fifteen years old, and still as healthy and vigorous as any one could desire.

I have never had the least difficulty with dwarf pears dying, and I attribute my exemption from such disappointments to three things. In the first place I never buy such a tree *unless it has been budded low down near the root.* Such trees can be planted so deeply as to secure roots from the pear stock, without any danger of smothering the present root and killing the tree by planting too deeply. In the second place I always bury the whole of the quince and about four inches of the pear stock in the soil. This does not at all interfere with the early fruitfulness of the tree (which makes the dwarfs desirable), and gives such an opportunity for the formation of pear roots as will secure the permanency characteristic of standards. In the third place, I no more expect my trees to live and work without food than to do it myself. I aim to keep them well supplied with plant food in the form of compost, ashes, ground bone, etc. And they express their thanks in such health and vigor, and such abundant and luscious fruit as makes me more than satisfied.

2. *Grape Grafting.*—I have several times tried grafting the grape, but never had anything but laborious failures till this last season. I have attempted it in the fall and in the spring, cleft grafting and whip grafting, and the only result has been what might have been called disappointment, if I had really had any expectation of success. But last spring Hon. M. P. Wilder very kindly loaned me a little implement made on purpose for grafting the grape. It consists of two parallel saws with a chisel between them for sawing and cutting a smooth groove in the stock, and a knife with two parallel blades for cutting the cions to such a thickness as that they will fit tightly into the groove. By using this simple implement I had fine success in several instances. A couple of cions of Mr. Ricketts' new grape, the Secretary, made a growth of twenty-five or thirty feet, giving a most gratifying promise of fruit the coming season. Mr. Wilder, who has made much larger use of the implement than I, informs me that it has given him success in grape grafting at least nine times out of ten. I think it promises to prove a great benefit to the grape grower. But enough for the present.

Reading, Mass.

A Beautiful Evergreen.—The tourist who has climbed the long and steep ascent of Gray's Peak, in the Rocky Mountains, may have noticed the last appearance of arboreal growth as he neared the peak: Great old weather-beaten specimens, better able to withstand the terrific storms and intense cold of the locality, than any other tree in the vicinity. This is *Engelmann's Spruce*, named by Dr. Parry, the discoverer, *Abies Engelmanni.* It is not unlike the Menzies spruce in color, but yet it is even more beautiful than that species in its peculiar bluish glaucous tint. Experience for a few years past has taught us that, contrary to the most of our Rocky Mountain conifers, it is hardy and reliable at the East. Whether it will continue so for a series of years, remains to be seen; but it is being tested in a number of localities, many of which are trying to the half-hardy trees.

Bran for the Cabbage Worm.—A correspondent of the *New York Tribune* says that bran sprinkled on cabbages, immediately after the appearance of the yellow butterfly, is a sure way of getting rid of this pest of gardeners.

Fruit Culture.

Pippins.

BY S. J. PARKER, M.D.

I HAVE been a very self-wise amateur in fruits. As I grow older, the starch of my self-impudence is getting sadly rumpled out of decent order. No apple humbles my pride more than the Pippin family. I knew all about them twenty years ago: to-day I give up the contest, beaten. Yet let me say that the *Hixon* or *Magnolia* apple I regard as a "fall pippin." It is the largest of all the fall pippins I have any acquaintance with. Early in the season it is a greenish-yellow, with a silvery-white glance of light beneath the green skin. Later in the season it is yellow, and then changes into a dirty sallow yellow color. Exact pictures of it, taken at various periods of time, would lead one to think it several apples. It never is best in quality; yet is respectable, especially at the maturity, when the green and the white fade out into the purest yellow. The sallow yellow, and at last coppery yellow of its old age, is accompanied by a sickly taste. It is a fine bearer, especially on deep, dry rich loam soil; poor on gravels and clay. It is a great bearer, and overloads on certain deep rich soils.

The Newtown Pippin.—With all the esteem of the venerable past, I must say that its historic reputation is, to me, as I usually see it, its sole value. As usually grown, even by the best cultivators of middle New York, it is neither large, fair, nor attractive in appearance. Occasionally at a fair one sees almost a specimen of what its reputation has been, but that almost a dream of worthiness is sadly overthrown by the cart-load view of it, such that one, not knowing its name, would immediately send to the cider-mill. and not to his cellar or to the barrel for market. So whatever it may be by special culture, or has been, is of little moment; it is practically superannuated and abandoned.

The Fall Pippin.—I wish I knew which, out of thirty or forty rather inferior apples, ripening in the fall, this apple was. It can't be the dull yellow pippin that decays by October 10th, nor the fall winter pippin, which is passably fair and is edible in January and February. Nor is it the green pippin, ripe with Magnolia, December 1st. So all I can say is, that if you will tell me which John Smith you mean, then I will say how I like Mr. John Smith, and how he appears. But really, this is quite unnecessary, as all these various seedlings, perhaps fifty in number, ripening from Oct. 1st to March 1st—while many are quite excellent and ever will be valued—the most deserve to be dismissed as too crisp in flesh, too sour in acid, too small in size, or with other undesirable qualities. If any one has a large, fair, yellow pippin, ripe October 15th to December 1st, with red cheek or a blush on the cheek where the sun colored it, mealy, juicy, tender, easily cooked into a delicate yellowish apple sauce, and more or less acid, yet finely flavored when cooked with sugar, I advise him to call it the Fall Pippin, and cultivate it. If it is below this, then call it "a pippin," and abandon it.

The Golden Pippin.—This is distinct from all the fall pippins, yet is a fall pippin. It is a large apple, and so beautiful that I advise it to be cultivated, and shipped to Europe; for it is as easy to get a label cut in brass and used to mark with black paint on the barrels—"Newtown Pippin"—as it is to mark forty packages of butter selected from thirty different dairies—"Mr. Jones' dairy," No. 1, made May 10th to 14th; No. 2, May 14th to May 20th, and so on, even if all was made in October. This pippin is the glory of all the endless pippin family. It is often four inches in diameter, rarely less than two and a half inches; apt to be "water cored," or so juicy as to have its delicious sap ooze out between the soft, buttery yellow, loose granules of its golden flesh; beautiful pale gold color, and the prize of all fall apples, and it is edible October 10th; and on a dry shelf in a cellar or up stairs room, can be kept till January 20th. It is *the* pippin of all the pippins. No apple is a better type of an

apple, or chosen as quickly as this, out of a score of varieties.

It needs to be grafted on vigorous stocks, have a dry, loamy gravel soil, and a fair annual supply of manure, except in such soils as middle New York, where it takes care of itself. Mind you, reader, there are twenty so-called Golden Pippins, but yet only one real one, and this is at least sixty years old.

Estimating Profits in Fruit Culture.

BY A. S. FULLER.

GENERALLY speaking, the "good of a thing," in the estimation of our people, is sought in the profits to be derived therefrom. Horticulture is no exception to this rule, and especially do we see it displayed in fruit culture, for our people have not reached that place in æsthetics where indifference to the pecuniary results of each and every venture becomes a steady custom. Writers upon horticultural topics, knowing the power or charm of the word "profits" in influencing the masses to attempt fruit culture, have used it quite extensively, and probably with good effect, as a whole, although there are doubtless many persons who know from bitter experience that it is the name of results more common in imagination than in reality.

I prefer no charges, however, against those who may have been guilty of putting forth slightly exaggerated statements in regard to prospective profits to be derived from the culture of certain kinds of fruit, inasmuch as it is very difficult to otherwise command attention. Then, again, what might be true one year, may not be another, for markets vary in their demands upon producers. Besides, sharp competition breaks down prices just at a time when least expected. A few years since, very choice strawberries sold readily in New York city from twenty-five to fifty cents per quart at wholesale. But the wide dissemination of the requisite information in relation to the mode of production, with perhaps true statements in regard to the profits, induced hundreds to embark in the business, with the well known results of an overstocked market and low prices. The same is true in regard to all of the small fruits, including grapes; and if there is any one to blame, it is those who taught the people how to cultivate these fruits so successfully. Fifteen years ago, horticulturists were asked to urge the owners of land in the country to cultivate more fruits for market and home use, as a sanitary measure, if for no other; and they responded with such promptness and effect that it is to be feared that epulosity is becoming more common with the advocates of a fruit diet, than the want of a healthful sufficiency. But with all the changes and occasional glutting of the markets, there is really no very discouraging obstacle in the way of a fair remuneration for labor and capital invested in fruit culture. An overstocked market one year, with corresponding low prices, is sure to drive many producers out of the field, thereby giving those who remain a better chance.

It is usually the vacillating in any business or profession who are most likely to fail, and probably in no calling has it been more apparent than in fruit culture. The really cheap and easily produced kinds, like the berries, will be always more or less affected by periodical fluctuations; but the larger kinds, such as apples, pears, peaches and plums, requiring more time to produce the trees, must necessarily be less subject to such changes. The novice in fruit culture, in starting out, could scarcely do better than to look over its past history before making any very sanguine estimates in regard to profits. What has been done, may be done again under like conditions, and failures as well as successes in the past may have been produced from the same causes which will produce similar results in the future. It is well to know what they are, in order to guard against surprises.

Tree Planting in Iowa.

BY SUEL FOSTER.

AT our annual State horticultural meeting, held at Burlington in January, our secretary, J. L. Budd, gave an interesting report of tree planting on "Arbor Day," which we

had set for the 20th of April. Premiums were offered in various ways for timber, shade, ornamental and evergreens, notice given in the papers throughout the State, a general interest aroused in the work. But unfortunately, a very unfavorable day appeared on the 20th of April. It rained in the southern part of the State, and snowed in the North, and frost not all out of the ground in some places. Notwithstanding, a great deal of tree planting was done, mostly after Arbor Day.

This year similar premiums are offered, amounting in the aggregate to nearly $300; but the Arbor Day is repealed, and all are recommended to set all the trees they can when time and opportunity is found for the work. The direction for planting for timber is, to set very close, so that the trees will make a tall growth. Three by four feet is recommended. Circulars are issued and sent broadcast over the State, giving directions for saving seeds, germinating and planting. This, with the premiums, will call attention to the subject, and our State will be improved by it.

The climatic influence of trees is not yet settled. My own opinion is, that their first, best and greatest influence is to stop a portion of the wind. How this conclusion is forced upon us when we go from the bleak winter winds into a grove or a wood of evergreens! Humanity to man and beast demands our attention in this work. I would most earnestly recommend to every one whose buildings, orchards and fields are exposed to the winter winds, to plant trees for their defense, *and do it the coming spring*, not only to protect us in winter from these *polar blasts* (of which we have had some sad experience this winter), but for summer protection against the wind. It has been demonstrated on our Iowa farms, that the field crops are considerably better for wind-breaks. The wind dashes the crops about, lays them flat on the ground, or slits the leaves into shreds; besides, it takes the moisture from the blade and stalk, and from the soil. Witness the wet plowed land and muddy roads, how fast they dry on a windy day. Evergreens are far the best to plant about the house, garden and orchard. The best deciduous trees for timber and windbreak are White Ash, European Larch, Soft Maple, Black Walnut, Honey Locust, Black Cherry.

There is one drawback: the trees will be in the way of the hedge. A large tree must not be within a rod of the hedge, and then it will be necessary to cut the tree-roots on the side of the hedge occasionally.

Besides the premiums offered by our horticultural society, the agricultural society has offered $1,000 for the best grove to be planted within ten years, offered some three or four years ago. And the legislature of our State passed a law, abating taxes for those who would plant trees. So you see we appreciate tree planting in this prairie country.

The Hyde Apple, or sometimes the Columbia Hyde.

BY WM. H. YEOMANS.

THIS apple, which originated in Columbia, has a very limited reputation, and has never been described. It is supposed to be a seedling, and first came to notice about half a century ago, and, possessing good qualities, the farms in the vicinity were provided with this variety of fruit by means of grafting. As no special efforts were made to bring it into notice, its reputation has extended scarcely beyond the limits of the town.

The tree is a vigorous grower, upright, with a tendency to limber branches; and in the case of trees having age, with proper pruning, the top is open, adapted to the introduction of heat and light, and withal is a prolific bearer.

The fruit is of good size; color dull red on a green ground, changing to yellowish when ripening, with splashes of deeper red; sometimes, when exposed to the sun, becoming bright crimson and beautifully shaded; form oblate, even; stalk very short, set deep in the cavity, which is broad and even; basin broad, inclined to be plaited, and of moderate depth; calyx medium; fruit hard, but very crisp and tender when matured; flavor acid; flesh white; core small, filled with seeds; quality good; season late autumn and early winter.

As this apple was first brought to notice upon a farm of which the owner's name was Hyde, it took that name, or sometimes the "Granny Hyde;" and as another section of our county put out another apple under the name of Hyde (which bears a strong resemblance to Hubbardston's Nonesuch, if they are not identical), the first named also attached the name of the town, as above, as a mark of distinction. In this vicinity, where it is known, it is considered much better than many varieties having a more enviable reputation. A large quantity tested by the Columbia Farmers' Club were pronounced excellent.

Columbia, Conn.

Seedling Grape from the Raisin.

BY WM. H. YEOMANS.

SOME three or four years ago, Mr. H. T. Bolles, of Rockville, Conn., to satisfy a little curiosity, and determine what the result would be, planted some Malaga raisin seeds. He had heard it stated that the seeds would not germinate, but in his trial a single one came up, and presented a vigorous appearance. The little vine was well cared for in a pot the first year, but giving so full evidence of hardiness and remarkable vigor, was cut back and put in the ground by the side of a building, receiving a southern exposure. The vine, through the season, presented unusual vigor, and made a very strong growth. It was properly pruned and cared for, and has grown remarkably stout. The past season the vine fruited, and an exhibition of the same was made at the Agricultural Fair of Tolland county, Conn., was tested by many, and by all very much admired.

The bunches are medium in size, and compact, not shouldered; the fruit is also medium in size, a little larger than the Delaware, but hardly as large as the most fully developed Dianas; the form is nearly round; color white, or slightly tinged with pink, almost transparent, with a very rich bloom; flavor peculiarly foxy, and very sweet and rich; skin very thin. The period of ripening is September. From the alleged hardiness of the vine, the early maturity of the fruit, and the rich promise of excellent quality of fruit, this will undoubtedly prove a valuable acquisition to the grape family.

Columbia, Conn.

Fruits for a Small Garden.

BY WM. F. BASSETT.

IN the December No. of the HORTICULTURIST, A. S. Fuller makes some excellent suggestions on this subject, but alludes to the Wilson Early Blackberry in such a manner that many will infer that it is a first-class fruit for family use, which I think it is not. It is true, it is large and very productive when well cared for, but as far as I have heard opinions expressed, at least nine out of ten do not consider it fit to eat when they can get good Lawtons and Dorchesters.

The Lawton, *when allowed to remain on the plants till fully ripe*, is not excelled by any variety I ever tried, unless it be the Kittatinny. This remark applies to the Lawton when grown in a warm climate; only as far north as Massachusetts it is entirely even when it does not winterkill. The Kittatinny is my favorite blackberry when in perfection; but although I have seen as good ones here as among its native hills in Sussex county, yet it does not generally give very good satisfaction our sandy soils.

Hammonton, N. J.

The Giffard Pear.—We do not think the *Giffard* pear receives as much attention as it is entitled to, says the *Germantown Telegraph*. It is of good size, handsome form, ripens directly after the Tyson, is very much in appearance like it, and is nearly equal in flavor to that admirable pear. One thing especially in its favor is, that the tree is a free grower, and comes into bearing in about four years, and in this has a great advantage over the Tyson, which is slow in fruiting. We have a tree which, in four years after setting out, bore a full crop of perfect fruit. This desirable variety is to be found in most of our public nurseries.

Window Gardening.

Begonias.

I HAVE of late taken a great fancy for Begonias, and will give a few remarks on that class of plants for this number. Begonias are grown by some for their flowers, by others for the foliage. They are so numerous in their varieties, and so different in their habits, that it is but right we should classify them in some manner, to be able to distinguish which the amateur should prefer. Hence I here place all the varieties under four classes: 1st, the tall or tree-growing; 2d, the low or ornamental; 3d, the running; and 4th, the tuberous.

Of the first class we have many varieties, all of which, with few exceptions, are grown for their flowers, which hang, drooping like small hearts; while in class second the flowers are borne on strong stems, large and open. Foremost among those of class first we place B. Saundersonii, cherry pink; B. Weltoniensis, pink; B. Weltoniensis alba, white; B. Hybrida multiflora, rosy pink; B. Richardsonii, new, white; B. Odorata, white; B. Fuchsioides, scarlet; B. Nigricans, pink. We have here eight varieties that are as good, if not the best, that can be selected out of a list of thirty kinds. There are still a great many varieties of class one that are grown for their foliage. As a sample we might name B. Argyrostigma—the Pheasant-spotted Begonia, as it is sometimes called. Its leaves are very long and narrow, of a dark green color, spotted with white; flowers pale yellow. B. Parnelli, new, has its foliage spotted very much like the former variety, only the leaves are more round, and of a paler green. B. foliosa might well come in here as a very neat and handsome plant. This variety has a fern-like appearance, so desirable among plants. Its small leaves, produced in great abundance, droop very much in the fashion of a graceful adiantum, while for its flowers we have to seek way down under the leaves. Too humble to aspire after the sunlight, like its gaudy neighbor B. Rex, they content themselves in peeping out from among their leafy bower. B. Palmettifolia resembles in miniature the tree from which it takes its name; a very pretty variety for a general collection.

Of the second class there are so many beautiful varieties, that it is impossible to choose a few without slighting others. I will here take eight kinds, and will leave others to choose as their peculiar fancies may dictate. B. Rex stands at the head of the list, with its great broad leaves, spreading majestically over all its kind. This variety has a broad green margin, running round the outer edge of the leaf, a deeper ring of white and a narrow ring of green at the stem. B. Smaragdina, quite the opposite of the former, contents itself in sending small leaves, of a rich velvety green, three or four inches above the pot. B. Isis has a peculiar metallic look about it, that makes it a favorite at sight, and the under portion of the leaf is crimson. B. Robt. Buist has a very pretty green leaf, the markings of which are very distinct; B. Dœdalia, a green leaf, mottled with black. B. Leopardii is much like B. Rex, save that the white centre is broader, with a green edging spotted with white. B. Majestic, similar to B. Leopardii, with exception of white spots, is by far the best variety for easy culture I have named. Last, but not least, is a seedling raised by myself some three years past, and named after one of our florists, B. Thomas Fairley. I may be pardoned if I say this variety suits me better than any I have ever cultivated. It grows better, blooms more freely, and then the markings are so beautiful—first a narrow belt of green, then a broader one of white, then a still broader blotch of green. Although I have called the first class the *flowering*, yet I hesitate to say which of these two give the most flowers. Certainly the flowers of these are the finest, largest and prettiest.

Of the third class I only cultivate one variety, B. glaucophylla scandens, a creeping variety, with large panicles of orange salmon flowers and dark green foliage, used mostly for hanging baskets, where it delights to ramble, making one of the most beautiful plants for the purpose under cultivation.

In the fourth class I am not so well versed, not having "kept up with the times." B. tuberosa has a pale green leaf, the under side brilliant crimson, and flowers of pale pink, produced in great profusion in the fall. B. Sutherlandii, one of the new varieties, is very pretty, having yellow flowers, and, like all of its class, blooming profusely.

Begonias are of easy culture, delighting in free, rich, sandy loam, at certain seasons requiring very little water, only they must never be allowed to get completely dry. The first and third classes are propagated from cuttings; the second from cuttings, or in the more general way of taking a leaf, breaking the ribs or veins, and placing it lightly on the sand-bed, so that the broken parts touch the sand. In two or three weeks (or less, according to the heat), young plants will shoot up from every broken vein. Those of the fourth class are increased from tubers, formed either at the root or on the stem of the plant. When young plants are to be grown, they should be started into growth early in spring, and freely encouraged to action. Pot small plants into light earth; give plenty of heat and moisture. They delight in a quiet corner, where there is not much sun, yet they should not be placed in the shade. As the spring advances, give them more room; keep the atmosphere moist, and continue to repot as the plants may require. In summer I generally keep mine in the cool greenhouse, after giving the glass a coat of whitewash, so the powerful rays of the sun will not burn the leaves. As winter approaches, gradually slacken the supply of water, and toward December those of class two will commence to send out flower buds; and to any one who has taken the trouble to care for these during the year, he will be more than compensated with a glorious show of flowers, that resemble white wax coated with crystal. Strange that plants so easy of culture, requiring so little care, are not brought into better perfection! We very seldom see a *specimen*, and yet I have seen B. Rex, one year old, grown by Alex. Frazier (at Wm. T. Walters', Esq.), with leaves measuring fourteen inches in diameter, and three to four feet in circumference. To grow such a plant requires no scientific knowledge; there is no *great* secret. Simply give the plant attention, good earth, plenty of drainage, light, not forgetting its fondness for a humid atmosphere, and room for the fibrous roots to seek out the good things contained in the flower-pot.—*A. B. in Am. Farmer.*

Two Good Winter-Blooming Plants.

(The Cyclamen and Chinese Primrose.)

I DO not know of any two plants that, for ease of culture, neatness of habit, and freedom and beauty of bloom, can compare with the plants above named—*Cyclamen Persicum* and *Primula sinensis* of botanists. Through the continued and persevering efforts of florists, we have them of all shades, from the purest white to the deepest crimson. We have also double primroses, red and white, and single ones, beautifully fringed, and the petals overlapping one another, so as to form almost a perfect circle. The foliage of the primrose is not unlike some varieties of geranium, of a rich green, and slightly hairy or downy.

The foliage of the cyclamen is so beautiful that it would be worth cultivating for the beauty of its leaves alone. These are of a rich dark green, mottled with lighter green, and pearly white stripes and blotches, and differing much with different plants. The under side of the leaf is light red. The temperature that suits them best is from 50 to 60 degrees, but they are not hurt if the thermometer runs down to 35 degrees. They also prefer a shady situation to one in the full sun, though a couple of hours' sun may be of advantage. I have had the same primrose in bloom for over three months, and the cyclamen six weeks.

The soil for primroses should be one-half sandy loam and one-half well-rotted *cow manure*. The roots are very fine and hairy, and require open soil. The cyclamen, having strong, fleshy roots, do better with a stiffer soil, but it should be rich if you wish to see fine flowers and bright leaves. I always re-

commend good drainage, though many of the great horticultural lights of the day condemn drainage as useless. The bulbs of the cyclamen increase in size every year, and I have seen them over five inches in diameter. Such large bulbs will give from 50 to 100 blooms. As soon as the weather gets warm, the cyclamen may be set out in any shady place. It will lose its leaves when the hot weather comes on. It will again start into growth about September. The primrose is a little difficult to keep through the hot summer months, but as it seeds freely, this is not of so much moment. If they are put in a perfectly shady place, and just enough water given to keep them from wilting away, they will make fine plants for another winter, and bloom freely, although I think the individual bloom is not quite as large as with young plants. Seeds of both cyclamen and primrose should be sown the last of August. The primrose will bloom the same year; the cyclamen takes from one to two years, but the bulbs will last for a dozen years. There are many varieties of the cyclamen, but the *Persicum* is the only one I can recommend for winter bloom. Of course the plants must be kept clear of dust and insects. —*Cedar Mount in Am. Farmer.*

Treatment of Oleanders.

A VIRGINIA lady wants to know what to do with her oleander, which has become so large as to be troublesome. The best plan we can suggest is, to plant it out-doors this spring. It will make a grand growth, and bloom during summer, and next fall let it die. Previous to the coming of frost, however, say about Sept. 1st, take cuttings of the half-ripe wood, about four inches long. Now prepare a compost, two-thirds sand, one-third woods mould. Fill three-inch pots with this, and insert the cuttings. Put the pots in a close, shaded frame or greenhouse, and keep well watered. When cold weather sets in, keep them in a cool greenhouse, or some place where they will not be much excited by artificial heat. By February, most of them will show flower buds. Now put them (still in the poor, sandy soil) near the glass in a warm greenhouse or bay window. To save watering, a dozen of these little pots can be plunged in moss in a shallow box. When the new growth starts out around the flower-buds, pinch it out, so that all growth can be concentrated in the buds. If properly handled, by April each little plant will be a bouquet of bloom. In summer, these plants can be planted out to make growth for more cuttings in autumn. Those who wish large plants, can keep them cut down as bushy as they may wish, as the oleander pushes readily when cut back. We prefer the little plants. Oleanders generally do not bloom as well as they would, because the young shoots around the blossom bud are allowed to grow to the injury of the bloom. Pinch them out.—*Am. Farmer.*

Smilax.—Will you please tell me, at an early day, how to plant and manage smilax seed so as to obtain the best result? What kind of soil, whether it needs the sun, what time of year, etc.; in fact the minute details of its culture, and how long it takes to get a good, vigorous vine for winter decoration. I have read of its growing yards and yards, but have never seen anything of the kind with my friends that have it, so I have concluded there is something wrong in its management.

Mrs. C. H. Scarborough.

Answer.—Sow the smilax seed in March, and grow it on fast in good, rich soil, in full sun. Give plenty of water, and syringe well to keep away red spider, if required during winter. Cut it down in August; it will then give good, strong shoots, but the best results are obtained the second year. We have shoots with this treatment, grown in boxes, in a temperature of 50 degrees at night, about six yards in length.

Lilium purpureum.—This beautiful new lily has been introduced into England from California, where it excites much attention. Its flowers are said to vary in color from a purple to a purple lilac. It is the first time it has been offered for sale, and believed to be very fragrant, and the finest of all the Californian lilies.

Editor's Portfolio.

Disappearance of the Oak.

Oak timber is rapidly disappearing from Europe, although half of the area of Sweden, one-fourth that of Norway, one-sixth that of Switzerland, and 780,000 square miles in European Russia are said to be yet in forest. The consumption of oak in France has doubled during the last fifty years. She requires 15,000,000 cubic feet yearly for wine casks alone, 750,000 cubic feet for building purposes, 600,000 cubic feet for her fleet, and 150,000 cubic feet for railway cars. £800,000 worth of staves were imported in 1826; £5,000,000 worth are now needed. Since losing Alsace and Lorraine, France contains 150,000,000 acres; 20,000,000 of this surface is covered with forest. In Norway the Administration of Forests declares that it is necessary to stop the cutting of timber. Holland and Belgium are nearly denuded of timber, and are large importers. North Germany is rich in forest, but within half a century has begun to cut down young trees. Austria has sold her forests since railways have been introduced. In Italy no forests remain. Spain and Greece are almost woodless. The southern coasts of the Mediterranean are almost forestless. Wood, for all purposes of construction, is becoming scarcer and dearer in all parts of the United States yearly. In the Dominion of Canada it is yet abundant, though rather farther to seek.

Peas Three Thousand Years Old.

In the course of late explorations in the ancient ruins of Egypt, Gen. Anderson, an English traveler, found, inclosed in a sarcophagus beside a mummy, a few dry peas, which he preserved carefully, and on his return to Great Britain, planted in the rich soil of the island of Guernsey. The seeds germinated, and soon two little plants appeared, from which, at maturity, sufficient peas were gathered to plant quite a large tract of ground in the following season. Some of the plants thus raised have attained a height of over six feet, and have been loaded with blossoms of exquisite oder, and of a delicate rose tint. The peculiar feature of the growth is the stem, which is so small near the root but increases greatly in size as it ascends requiring a support to sustain it upright. The pods, instead of being distributed around all portions of the stem, as in the ordinary plant, are grouped about the upper extremity. The vegetable, it is said, belongs to the ordinary garden variety; but from its presenting the very distinctive difference above noted, it seems worthy of close botanical observation. The peas are of remarkably fine flavor, excelling in delicacy those of the choicest known varieties.

The Pottery Tree.

Among the many vegetable products of Brazil the pottery tree of Para is not the least worthy of note. This tree, the *Moquilea utilis* of botanists, attains a height of 100 feet, up to the lowest branches. The stem is very slender, seldom much exceeding one foot in diameter at the base. The wood is very hard, and contains a very large amount of silica—not so much, however, as the bark, which is largely employed as a source of silica in the manufacture of pottery. In preparing the bark for the potter's use it is first burned, and the residue is then pulverized and mixed with clay in varying proportions. With an equal quantity of the two ingredients a superior quality of ware is produced. It is very durable, and will bear almost any amount of heat. The natives employ it for all manner of culinary purposes. When fresh, the bark cuts like soft sandstone, and the presence of the silex may be readily ascertained by grinding a piece of bark between the teeth. When dry it is generally brittle, though sometimes hard to break. After being burned, if of good quality, it cannot be broken up between the fingers, a pestle and mortar being required to crush it.—*Engineer.*

New Textile Plant.

The plant known in North America as the wood-nettle, was discovered some years since on the Alleghany Mountains, at an altitude of more than 5,000 feet above the sea level. Some living specimens which M. Roezel, the

discoverer, took home, were disposed of to the Prussian minister of agriculture, who was desirous of ascertaining the value of the plant under cultivation. The results so far appear to be favorable, and the laportea pustulata as a textile plant is now occupying much attention in Germany. Being a perennial, the laportea does not require to be sown every year, and in this respect has some advantage over hemp and flax; besides which, it is said to be far less troublesome and less expensive than hemp in the preparation of its fibres. In the wild state it grows from 2 to 3 feet high, but as grown at Berlin it has already reached a higher stature, which, it is probable, will be still more extended by careful cultivation in suitable soil. The experiments which as yet, to a limited extent only, have been made as to the quality of the fibre, tend to the conclusion that it will form a valuable addition to our textile materials.

Importation of European Pine Seeds.

While traveling in Saxony recently, Mr. Ryerson, of Muskegon, Mich., found a species of pine called *tanne*, which is more durable than our American pine, and which is successfully transplanted in that country. He has sent home seed enough of this wood to sow 500 acres, and the experiment will be tried next spring at his farm near Bridgeton.

Irrigation.

M. B. Bateham says, in the *Ohio Farmer*, that in his opinion irrigation will double the strawberry crop as an average in Ohio, and he recommends it where water can be easily drawn from a higher head. We have seen strawberries nearly doubled in size in forty-eight hours by irrigation.

The Eucalyptus.

The *Revue des Deux Mondes* of 31st Jan. contains an interesting paper by M. Planchon, on *Eucalyptus globulus*. The subject is treated from the botanical, economical and medical points of view. The Eucalyptus is known to combine an iron texture with rapidity of growth. Some estimates have lately been made with reference to its value as a forest tree in Algeria. According to M. Cordier, if 1,000 of the trees were planted closely together, there might be cut down in 5 years 500 of them, worth 600 frs.; in 10 years 250, worth 1,323 frs.; in 15 years 125, worth 1,473 frs.; in 20 years 60, worth 1,521 frs.; and in 26 years 60, worth 3,195 frs.

Sleep and Odor of Flowers.

Sir John Lubbock, in speaking before the British Association concerning the fertilization of flowers by insects, said:

Everybody, however, has observed that even in fine weather certain flowers close at particular hours. This habit of going to sleep is surely very curious. Why should flowers do so? In animals we can understand it—they are tired and want rest. But why should flowers do so? Why should some flowers do so, and not others? Moreover, different flowers keep different hours.

The daisy opens at sunrise and closes at sunset, whence its name, day's eye; the dandelion (*leontodon taraxacum*) opens at 7 and closes at 5; *arenaria rubra* is open from 9 to 3; ear hawkweed (*hieracium pilosella*) is said to wake at 8 and go to sleep at 2; the scarlet pimpernel (*anagallis arvensis*) to wake at 7 and close soon after 2; while *trogopogon pratensis* opens at 4 in the morning, and closes just before 12, whence its English name, "John-go-to-bed-at-noon." Farmer boys in some parts are said to regulate their dinner hour by it. Other flowers, on the contrary, open in the evening. Now it is obvious that flowers which are fertilized by night-flying insects would derive no advantage from being open by day. On the other hand, those which are fertilized by bees would gain nothing by being open at night—nay, it would be a distinct disadvantage, because it would render them liable to be robbed of their honey and pollen by insects which were not capable of fertilizing them. He believed, then, that the closing of flowers had reference to the habits of insects. He observed also, in support of this, that wind-fertilized flowers never sleep; that some of those flowers which attract insects by smell, emit their scent at particular hours. Thus, *vespris matronalis* and *lyckins veapertina* smell in the evening, and *orchis bipolia* is particularly sweet at night.

He had been, he said, good-humoredly accused of attacking the busy little bee, because he had attempted to show that it does not possess all the high qualities which have been popularly and poetically ascribed to it. But if scientific observations do not altogether support the intellectual eminence which has been ascribed to bees, they have made known to us in the economy of the hive many various peculiarities which no poet had ever dreamt of, and have shown that bees and other insects have an importance, as regards flowers, which had been previously unsuspected. To these we owe the beauties of our gardens, the sweetness of our fields. To them flowers owe their scent and color—nay, their very existence in its present form.

Not only have their brilliant colors, the sweet scent and the honey of flowers been gradually developed by unconscious selection of insects, but the very arrangement of the colors, the circular bands and radiating lines, the form, size and position of the petals, the arrangement of the stamens and pistil are all arranged with reference to the visits of insects, and in such a manner as to insure the grand object which renders these visits necessary.

In conclusion he observed that while he had attempted to point out relations which exist between insects and some of our common wild flowers, the whole subject is one which will repay most careful attention, for, as Muller has very truly said, there is no single species, the whole history of which is yet by any means thoroughly known to us.

Corrections—Botanical Names.

A slight error in March frontispiece, whereby a botanical name is made to read Welbia instead of Welfia, is an occasion for us to explain that, as our journal is printed 150 miles away from our office, and compositors often in hurry of putting to press, by mistaking one letter for another, or possibly not noticing some slight correction, botanical names occasionally become misprinted. Of course the editor knows better, and is mortified; still leaks happen which foresight does not always prevent. The expectation of readers that any journal may or must be perfect, reminds us very much of an association of eminent English divines, who gathered together to search the Bible thoroughly, and expunge any possible errors or misprints. When their work was done, they offered a reward of £10 to any one detecting a flaw. In walked one day a gentleman in no way connected with literary matters, who pointed out an important error on the *title-page itself*.

The Horticulturist—Complimentary.

I have been a subscriber for THE HORTICULTURIST from the first number, edited by the lamented Downing. At times the magazine fell short of the mark, and I was tempted to discontinue it, but held on in hope of better things. Under your management it has regained its old prestige. The articles are short, pointed and full of the information most needed by your readers. I wish you the largest success for 1875. ROBT. W. STEELE.

Dayton, O.

American Pomological Society—Complimentary.

The following notice was recently given in an address before the Norfolk, Va., Horticultural Society:

"The American Pomological Society is the only organization known to me that is untainted with sectional, political or pecuniary interest. It is regarded throughout the world as a perfectly impartial tribunal in its decisions of adaptability of each State to the culture of the various kinds of fruits. Embracing, as it does, the most brilliant pomological lights of the country, many of which are brightened by a half century's experience, and extending not only through the entire territory of the United States, but joined by kindred spirits from the Canadas, it becomes the only reliable guide for the immigant seeking a fruit section."

Hovey's Pear Orchard, Cambridge, Mass.

The orchard consists of about 2,000 trees, not planted in orchard style, but in the borders of rectangles. The trees stand close to each other, in many cases not more than six feet apart, with dwarfs and standards generally alternating. A good many of the latter have become standards since planting, yet not so generally as those in the orchard of President Wilder. Some of those not rooted from

the pear are quite loose, and lean more or less, but bear fruit in spite of these defects. A part of the orchard (on the east side) has not had much care given it for a year or two, as the land has become more valuable for building purposes than for pear culture, and grass has been allowed to grow about the trees. It is not improbable, indeed, that this will soon be the fate of the whole orchard, as no possible success in the quantity or quality of fruit can long justify its growth in the midst of a city where land is worth several thousand dollars per acre. But there is every indication of one more great crop, every tree being full of the promise of fruitfulness.

Mr. Hovey began planting in 1841. The number of varieties has been reduced from 600 to about 200. In importations and changes to test new varieties the firm have spent some $25,000, the public getting a large share of the benefit. Those who decry "book-farming" and amateur work in fruit culture, would do well to tell us how *they* would know what varieties are best to plant or to avoid without the expensive experience of such enthusiasts. The mistake of planting a few hundred worthless trees with high sounding names, would ruin the ordinary grower in many cases, but, enlightened by these sometimes ridiculed "amateur" tests, they have comparatively fair sailing. Among the very best of early pears, Mr. Hovey recommends the "Boston," two fine rows of which he pointed out to me, and of which he produced 140 bushels in 1871. He first found this fruit in the Boston market in 1839, unnamed and unknown, and after some difficulty found it had been grown by a Deacon Abbott, near Hartford, Ct. Nothing was known of it except that it was *there*, and was a good pear. Mr. H. procured scions of it, grew them fourteen years before disseminating the tree, and then put it out as the "Boston," when other parties soon after called it the "Pinneo." He regards it as superior to the Bartlett in quality, though smaller in size. In its bearing habit it is something like the Baldwin apple, bearing every other year, though most pears bear annual crops.

The Sheldon Mr. Hovey esteems very highly. St. Michel Archange he also regarded very favorably. The Belle Lucrative is fine for eating, but lacks the color to make it readily salable. (I beg to remark of this pear that in Vineland its color at maturity is all that the most fastidious epicure can ask, and its quality is equal to its color. Indeed, it is difficult to name a pear which here in superb quality, and fruitfulness on the quince, can surpass the Belle Lucrative.) The great mass of foreign varieties Mr. H. finds to be worthless in America, and only about six American varieties will succeed on the quince. The pear needs little pruning during its mature years—this care should be given it while young. Low training is best at first, as then the trees become well established, and if desirable they can be trained high afterwards. The pear, without pruning at all, will make a tree of great size, but such are not desirable. The standard has the peculiarity of being without many fibrous roots, and yet, with only long and straggling roots, holds its position with great firmness and tenacity. The cultivation in Mr. Hovey's orchard is mainly done by hand. All the trees were trained to the pyramidal form at first, but grafting, re-planting, the necessity for passing between the borders with carts and wagons, etc., have resulted in the removal of most of the lower limbs. In general, there is a greater absence of limbs on the side next the wagon paths than on the other, and hence the orchard, as a whole, in connection also with the numerous grafts growing, cannot be said to be very symmetrical, or a perfect model in the shape of the trees, and the laying out of the grounds as an orchard merely. This cannot be expected where the testing of new varieties is regarded as of more importance than the growing of a few bushels of fruit, about the merits or demerits of which there is no question. But the Messrs. Hovey, nevertheless, grow large crops of fruit. Last year they had about nine hundred bushels; this year, so abundant is the promise, they think it may easily reach twelve hundred bushels if no casualties interfere.

In flowers the Hoveys evidently do a large

business, as their greenhouses are numerous, well filled, and extensive. Just now they are brilliant with bloom. On one part of the grounds is a plantation of rhododendrons surrounded by an Arbor Vitæ screen some fifteen feet in height, and about ten years old. The value of this little rhododendron plantation is something almost startling to one unfamiliar with the great popularity of these flowering shrubs. There are perhaps a thousand of them, grown from seed cultivated from 15 to 20 years, and selling now at from $15 to $25 each—perhaps $20,000 worth of rhododendrons on half an acre or so of land!—*Cor. Country Gentleman.*

Gardening in Scotland.

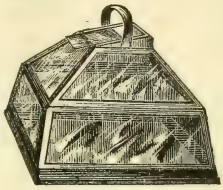
A letter from Malcolm Dunn, gardener to Duke of Buccleugh, Dalkeith, Scotland, addressed to John Grieves, Esq., of this city, contains some interesting gossip, of which we quote a few paragraphs, by courtesy of Mr. G.: "I have a good many fine orchids in flower, especially the Vandas and *Angræcum sesquipedale.* I had twenty-five flowers of the latter on one plant, the greatest number ever seen. The camellias are literally a *blaze* of flowers.

"I send you a few eyes of a new vine just let out, called *Venus' Black Muscat*, said to be a real Black Muscat, and to do exceedingly well in a *Hamburgh vinery*, that is, a *moderately* warm vinery. I enclose two packets of geranium seed, saved by Messrs. Veitch from the finest collection of these plants in this country. The canned fruit sent came in first-rate condition; the fruit is beautifully preserved. I told the Duchess of B. about it also, and have sent her a can of each sort to try. The 'big folk' think as much of these things when sent from a distant country, as we do. It gives them *something to talk about.*

"The *apples* sent are really splendid in every respect, and we are enjoying them as a very great treat. To-day I took samples of each sort of the apples to the Duke and Duchess, who were highly pleased. The Duke is very fond of good apples. The fruit is first-rate, and the canned fruit is the very best that my sister and I ever tasted."

New Garden Implements.

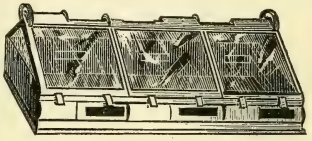
Among the many new inventions for the farm and garden, exhibited at the fair of the American Institute, in October last, we were interested in Musgrove's propagating frames and hand-glasses, patented Feb. 2d, 1875. We append a description of them, believing our readers will be interested to learn of an article containing so many points of excellence. The inventor claims (and we see no reason to dispute it) that, by using the hand-glass, many kinds of vegetables can be brought to market several weeks earlier than by methods now in use.



18x18. Height 15 in.

This is a square frame, and can be used for forcing melons, squash, cucumbers, early strawberries, tender annuals, bulbous roots, etc.

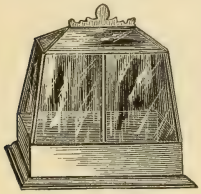
This frame is designed for tomatoes, egg plants, cauliflower, cabbage, etc. By the use of this frame, the plants named can be set in the ground as soon as the frost is out of the soil. On warm days, air can be given by sliding the glass on the top or at the sides; or the plants can be gradually hardened by removing the frame in the middle of the day. If a cool night threatens, it would be well to cover with old matting or carpet. By using these frames, plants can be grown fifteen inches high and well matured by the time it would be safe to set plants out by the old method. The frames can be kept in use at least seven months in the year, and will pay their cost the first season.



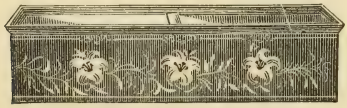
24x18 inches.

This is a propagating frame or permanent hot-bed in a small way. It is heated by a kerosene lamp, or gas and hot water, so as to have a moist bottom heat. This frame is well

adapted for an amateur or florist for striking hard-wooded plants, or growing tender seeds. All of these frames are made of zinc, and are strong and durable; no putty or paint is used. The glasses are made to slide so as to give air when needed. If glass should by accident become broken, it can easily be put in, requiring no skill to do so.



The Wardian case is for ferns, etc. The glasses on the sides are arranged so as to slide, enabling one to water the plants without disturbing the case. The top also slides off to admit air. These are handsomely japanned, and are a great improvement on anything of the kind ever before offered. There are four sizes of these cases.



The window boxes are designed for placing pots in, or may be filled with soil, and the plants bedded in. These are made in several different lengths, and ornamented in an assortment of colors and patterns. A sample fernery has been sent to us by the manufacturers, Musgrove & Son, 350 West 41st street, New York city, and possibly others will be as well pleased to learn of these as we were.

The Howell Pear.

The *N. Y. Tribune* makes the following note about this capital family sort:

The Howell Pear Praised.—Whenever our seedling pears, "to the manor born," succeed well with us, it is a real pleasure to recommend them, and such is beyond a doubt the record of the Howell, a variety with few enemies, but hosts of friends. It is a "New England Yankee" by birth, but a thorough American by education, as it is now well known and appreciated all over our country. Its merits, however, are perhaps more generally understood in Southern Illinois than anywhere else, as hundreds of trees of this variety are to-day bearing fruit, and paying their owners as handsome a per cent on the investment as any other variety in that section. It does exceedingly well at the East, too, embracing that great essential to popularity—early bearing, one of the merits belonging to the Bartlett. A tree of the Howell in full bearing is a sight worth going some distance to look upon. The large fruit, distributed evenly over the tree, with a beautiful yellow ground, heightened by a rich, ruddy red cheek, leave nothing to be desired excepting a luscious, melting, juicy flesh, and all this it claims as well. It reminds me more of the old White Doyenne in its ancient dress than any variety of modern introduction. It has been said that it is addicted to the blight, but I believe the weight of testimony will be rather the other way. Josiah Hoopes.

Chester Co., Penn.

Correction.

In an article in February No., by A. Veitch, Xanthophyll was wrongly printed with a Z. Of course readers know that all such typographical errors are accidental, and not those of ignorance.

Novel Cure for Blight.

Von Hulle, a Belgian horticulturist, states that they grow nasturtions in their apple orchards and let them climb up the trees to keep off the American blight. Also, tomatoes are planted among the grape vines to keep off wasps; it is said that they do so effectually.

A Good Law.

Japanese law requires that when a person cuts down a tree, he shall at once plant another in its place. In this way the supply of wood is kept up.

Meeting of American Pomological Society.

The next meeting of the American Pomological Society has been definitely fixed for September 8, 9 and 10, at Chicago, Ill. The official announcement will soon be issued by Pres. Wilder.

Numbers Wanted.

Copies of Horticulturist for August and December, 1874, are wanted to complete sets. We will pay twenty-five cents each for them.

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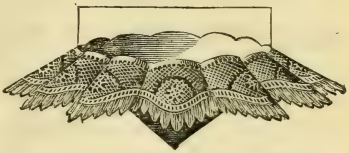
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See February Agriculturist, page 43.

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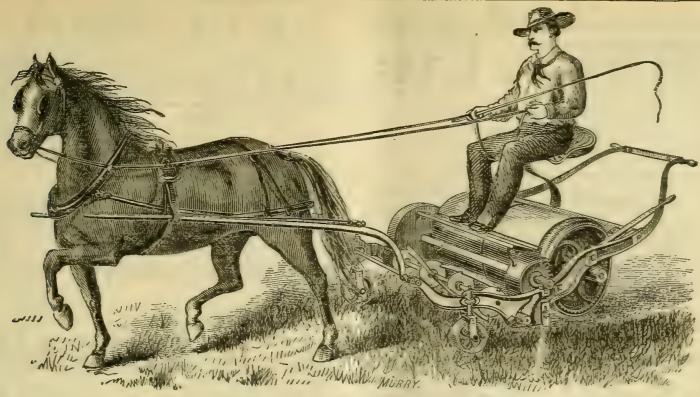
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It Runs Lighter.
It Rolls the Ground
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It Needs Less Repairs.
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Its Adjustments are More Simple.
The Gears are Perfectly Covered.

The Roller Does Not Run in the Standing Grass.

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" 3,	" "	15	"		25 00
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No. 5,	Width of cut	25	inches,		$ 75 00
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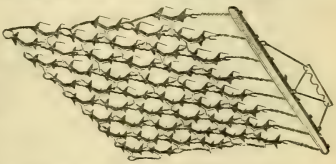
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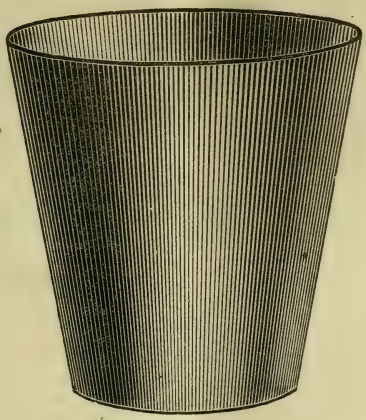


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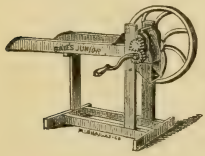
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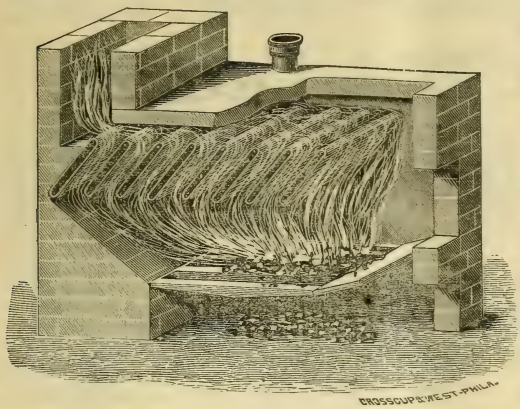
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BOTH SEEDLINGS AND TRANSPLANTED TREES,

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Over 500 New and Choice Varieties.

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	Per Doz.	Per 100.
Teas, well grown in 4 and 5 inch pots, our selection,	$3 00	$20 00
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Souvenier du Congres, Beurre d'Assumption, Brockwith Park, and other new PEARS.

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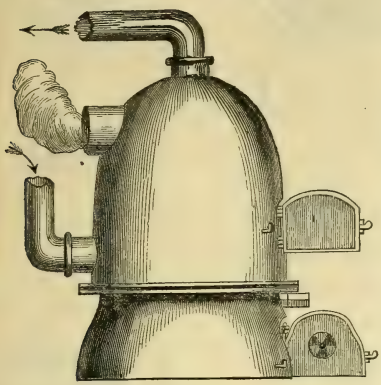


Fig. 1

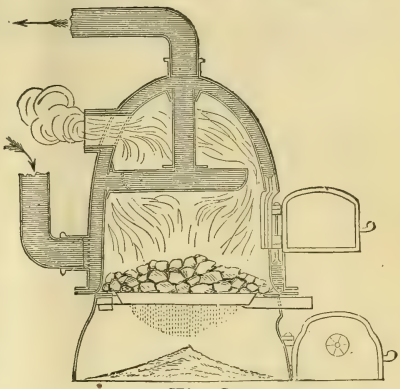


Fig. 2.

AND IMPROVED

Hot Water Apparatus,

For Warming and Ventilating Public Buildings, Private Dwellings, Greenhouses, Graperies, Forcing Pits, Drying Rooms, and Heating Water for Public Baths.

Fig. 1 is an outside view. **Fig. 2** is a vertical section through the centre.

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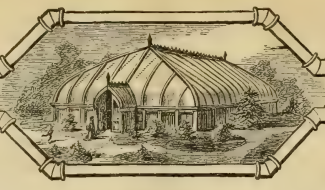
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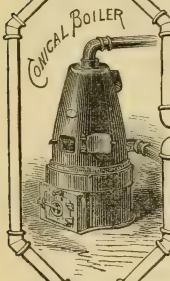
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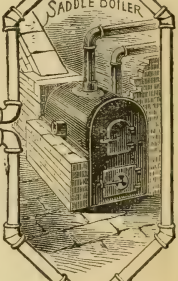
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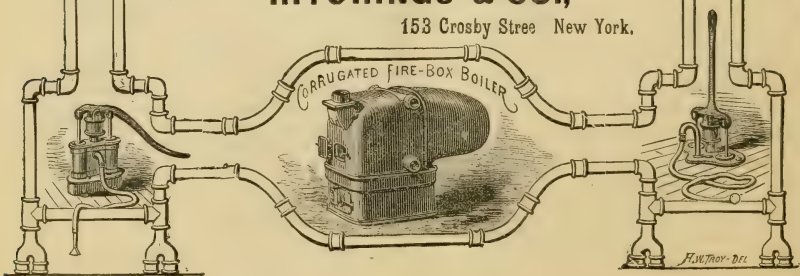
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SPECIAL CONTRIBUTORS TO EDITORIAL DEPARTMENTS:

JOSIAH HOOPES, ANDREW S. FULLER, JAMES TAPLIN.

VOL. 30. MAY, 1875. NO. 347.

Special Contributions.

Rambling Notes.

By JOHN JAY SMITH, formerly Editor of the HORTICULTURIST.

MR. EDITOR: You suggest very properly that the thirtieth year of the HORTICULTURIST is a suitable period for recollecting what have been the triumphs accomplished by its advent and since its publication. I knew Mr. Downing intimately, and, with others, hailed with great pleasure his first number. We then had no guide in landscape adornment, or that culture which renders a home in the country one of enjoyment and expansion. Happily, our friend was the right man in the right place, and fortunately he wielded a most attractive pen which brought us all to his feet. A few rambling notes which follow, may be suitable at this time to recall the periodical's early history.

To his many other qualifications for leading the public taste, Mr. Downing added a suavity and kindness of heart and manner which greatly endeared him to his friends. The experiment was a bold one, and was hailed with enthusiasm from all lovers of rural art. He had many difficulties to contend against, the greatest being the indifference or neglect of those who knew no better, and who were slow to appreciate; but his public grew as he unfolded his practical knowledge and combined his information with tasteful remarks. Many is the home which now benefits by his teaching. All who knew the North river well, recognize numerous instances where the trees of his planting, his grouping, and his architectural hints brought out an amount of beauty hitherto unthought of. It is to be regretted that when his memory was fresh, some one had not collected and published his correspondence. I possess some fifty of his letters, all marked by his gentlemanly and graceful pen, and each containing evidences of his high culture. He had a fine appreciation of music, and seemed in other things and arts to possess an intuitive knowledge of every thing beautiful. His character received a truthful estimate from his friend Curtis; strong as were the commendations bestowed,

they are all truthful, and fortunately these are preserved in the pages of his work printed soon after his melancholy death by drowning, when saving others.

Perhaps one of his brightest laurels was the fact that he stirred up the New York community to institute and carry to success the Central Park. He first suggested it, and by his writing and enthusiasm set his admirers to work, advising and planning *con amore*. Fortunate was it that a successor of so much taste and talent as Mr. Vaux was found able to continue and extend Downing's views.

After his death the periodical was edited for a few years by Mr. P. Barry, of Rochester, with success. It was then thought best to bring it to Philadelphia; the editorship was offered to me, then in ill health; I may as well tell it now, I took the post more to learn than to teach — quite an unwarrantable experiment. It resulted in a large correspondence with very many enthusiastic improvers, and in lasting friendships which have added vastly to my enjoyments of a long life—friendships that must not die.

As this is a rambling paper, it shall tell a little of the behind-the-scenes of the formation of the next great effort to make a Park, and that in Philadelphia, because the work now in your hands had something rather important to do with this. The story has been told before by others, else I should very properly avoid it; but history is history, and I shall be excused for the egotism of the relation in this place; it shall be briefly related.

Three gentlemen of public spirit, to use a common phrase, got park upon the brain; their names, Browne, lately deceased, Castle and Keyser, all occupying law offices which I had to rent, and consequently we were thrown sometimes in contact. Busy, and unwell in my chamber, these gentlemen, in despair of making an impression in the public mind, engaged an old hack and came to ask encouragement from the editor of the HORTICULTURIST, through which Mr. Downing had sounded the first note for New York. They proposed a visit to the few acres they had set their hearts upon, and detailed the important arguments that had been in vogue without effect, such as preserving the purity of our drinking water, etc. I assured them I knew the ground from my youth, and the arguments were sound and unanswerable; that to get the public ear it was necessary to hold a "public" meeting! Acting on the idea, I was placed in the Chair, Mr. Keyser was appointed Secretary, and the other two lawyers made, I must say, very effective speeches. Resolutions, very appropriate to the occasion, were passed, and we adjourned to the Historical Society's rooms, for a subsequent day. To this meeting the public was invited; but very few, indeed, came, and our courage was at a low ebb. A committee consisting of the four original members was appointed. We traversed the whole city in the slush and snow of 1857, and received the enormous subscription of eighty-two thousand dollars, twenty of which came from the public spirited and liberal Messrs. Cope. The price of the bit of land which it was then our sole ambition to purchase was one hundred and twenty-five thousand dollars; we could get but two-thirds of the amount; people did not like to put their hands into their own pockets. At this stage the brilliant idea was suggested to purchase the proposed property, for which we had the refusal, and give it to the city under a mortgage of, say, forty-five thousand. But such an outlay was then considered reprehensible; we had to solicit councilmen and count noses, *pro* and *con*, for months before a vote was reached accepting our donation! And now, observe the contract; a law was passed giving the judges of our courts the appointment of park commissioners; they appointed lawyers with no acquaintance with the subject; the result all now deplore; land by hundreds of acres was purchased, but there was too little knowledge of what makes a Park, and we are now left in the lurch; our debt is so large that councilmen are afraid to add more, and there is no plan to raise money for improvements. The once much praised commissioners are no longer be-puffed, and we are at a stand still.

There is something due to historical accu-

racy, and to the credit of the HORTICULTURIST, in this costly "improvement."

When Laurel Hill Cemetery was commenced, and I was devoting most of my time and energy to make an example, soon so generally followed, Mr. Downing was much interested in this subject, predicting, what has come to pass, that the planting and adornment of the Rural Cemetery would lead public taste to create the public grounds called parks, and he wrote several articles in furtherance of my views, while his private letters were full of enthusiasm on this new movement, one very little understood in Europe, where the attempts to form rural cemeteries are mere caricatures of the American plan. Efforts are now making to introduce our better system abroad.

I promised a rambling paper; let us cross the mountains to view the advance in cultivation since the advent of the HORTICULTURIST under Downing.

When one reads of the progress of the California regions of this great country, the mind is lost in contemplating its future destiny and greatness. For one thing, what a wealth is contained in the wine trade of our successors! The writer, in 1857, was staying at the best hotel at Natchez—alas! how poor it was! when a prominent lawyer of the place was ushered into my apartment, who asked if I could translate Spanish. He had a deed of a large property to prepare, the original was in the language of old Spain, and there was no person in the neighborhood who could translate its metes and boundaries! And yet Natchez had been largely settled by Spaniards; now every vestige of the nation, except its old parchments, is gone. So it is and is to be in California. The lazy Iberians never found the gold mines of such priceless value; they knew not Yosemite or the Big trees. Satisfied with little more than the climate produced, they yet had the traditions of the Old World, and the priest knew that good wine cheered the heart. By incredible exertions a few wine bearing trees found their way to the region, and now examples exist, one especially, of the wonders of the climate and the adaptability for wine culture, the future of which it is pleasant to look upon. Already we hear of great crops of raisins; the almond and the orange flourish equally well as in Cuba and other tropical climates. What may we not expect our successors will do in the wine trade? Prince Metternich, with the product of his Schloss Johannisberg will be only remembered as a tradition. That estate contains 325 acres, and is not solely devoted to the vine. Its highest production has been stated at sixty thousand dollars. We shall have vineyards in this country that will yield ten times as much and wine equally good. It is well to remember that all accounts agree in stating that phosphate of saltpetre is largely employed to restore the wood and fruit of the vine in the loose sandy soil, the component parts of which have been exhausted. It was the good fortune of the writer to be domesticated for a short period at the American Legation in Brussels; next door lived the late Prince Metternich, and great kindness and civility was shown to our ambassador, Mr. Clemson, in the way of gold sealed Johannisberg. It was good, and how can one depreciate what by consent of all the (drinking) world is declared the very best; yet, I confess, I prefer a glass of our good old Madeira, ripened in the South, and set before knowing amateurs.

It would be improper not to notice the fact that vines at this famous Schloss are planted less than three feet apart, in rows distant four feet from each other, and directly facing the sun, which is arrived at by the shadow cast by a pole stuck into the ground exactly at noon. A female Metternich now manages the estate; she bears the reputation of a remarkably keen woman of business, and will sell you gladly wine from 50 cents a bottle up to eight and ten dollars. The great advantage this wine possesses was discovered by pure accident as long as a century ago, when the Bishop of Fulda forgot to send the customary order for the vintage, and in consequence the grapes became shrivelled and even rotten before they were gathered; the wine then made was of surpassing excellence, and ever after the late vintage is reported to have become the rule—a hint to be remembered.

The formation of horticultural societies has been another effect of the establishment of Downing's periodical, but there are not half enough. Each rural neighborhood should have its association for floral exhibitions, and the success which comes from rivalry. No matter how small the population of a district, a union of effort will produce wonders. Gradually a taste will be infused; mental cultivation surely follows. Even the poor Spitalfield weavers have their competing exhibitions, premiums, and so forth.

The object of such societies should be to diffuse information. We may as well at once tell the progressive gardener that he can *never* come up to the requirements of his profession unless he is grounded in botany. The profession is one of science; we should never have had the accomplished Holland or English importers of new plants, unless they had been botanists. Send a man to collect new plants to Japan, China or South America, destitute of a knowledge of botany, and he would inevitably fail. The observer of the transit of Venus must be an astronomer, and just so it is that an accomplished gardener must not only have the practical knowledge that comes by observation, but he must know the why and wherefore, else will much of his time be thrown away. What would Kew gardens have been as a great example had Sir Wm. Hooker been a tyro in science? What would Douglas and others have done for their country as explorers, had they been only routine gardeners? The plasterer when he mixes his lime and his sand, knows from experience that a certain result will occur when he adds water to the mixture and stirs it carefully; he proceeds in his routine, which any laborer can imitate and perfect. His knowledge aspires to nothing higher. But suppose that he had the problem to solve that by certain combinations of metallic compounds he could exhibit to his employers the tints of the rainbow! that he could from the results of his studies depict the beauties of the heavens on your ceilings—show the principal stars in their relative positions, and so forth—would not such a plasterer have more business than he could accommodate? With the gardener, everything he knows he can turn to account, and transform the Winter scene into sunshine. It requires study and knowledge to conquer climate. An ignorant gardener, for instance, could not do much without trial and experience, unless he had conquered the difficulties of making a perfect Winter Rose house. He would first encounter his want of knowledge as to fertilizers, and through a long catalogue, including the exact temperature and the barometrical requisites, would come to the ever-recurring slug. He would fight his difficulties manfully and probably finally conquer, but had he previously educated himself his difficulties would, at all events, have been greatly less. He should have read of the experiences of others; combining these with his science, he would at once succeed, and have the pleasure, as one of our valued friends had the past Winter, of introducing his visitor to a perfect garden of roses, shielded from the snow, in glorious abundance; and let me add that he cuts grand and profitable bouquets twice every day of the queen of flowers, from Marshal Niel, running rampant in its glory, to the humbler, but not to be despised, Daily China. Let science and what others have learned, be more studied.

It may here be remarked that the advance in culture and civilization demands an American academy of horticulture. The erection of a Centennial building for the exhibition of our advances in conservatory culture now calls for a school for the education of learners and future professors of the art. It is most true that the successful horticulturists who have the control of our markets for plants are foreigners, a most useful class; it took and is still taking great efforts to give woman her proper occupation; equally true is it that obstacles easily overcome are keeping Americans from professing the art of gardening. In mercantile pursuits we have had the example of a Girard; one or more great successes stimulate our youths to attempt a similar career. Now, we have in Ellwanger and Barry, of Rochester, an example of what may be done in the way of great success by applying business habits with science, while in the West similar results

have followed careful beginnings. The successful cultivators of plants and trees in America have mostly emanated from the Government gardens of Great Britain, such as Kew and the botanical gardens of Edinburg and Dublin, etc. If we had a little government patronage, such as has been begun under that intelligent director, Wm. Saunders, at Washington, enthusiastic lovers of the art would be created among us. I ask if it is not now a good opportunity to create a great college of horticulture, taking the great conservatory erecting for the Centennial exhibition, which is to be a permanent structure? There is money in the business; governments, State and national, can do no greater service to our country than to inaugurate a college of horticulture. Agriculture has received very great encouragement and has profited thereby; why should our art be so entirely ignored in public appropriations? The beginning at Washington should be imitated in every State. There are industries in the line of the educated cultivator not yet developed. For instance, within a few years we have seen the bouquet business, the tuberose sales, monstrously increased; a cultivator on Long Island is said to have sold ——— for one hundred dollars a day. *Now* there are thousands of dollars lying in the New York streets and the streets of other cities, who will send round little baskets of perfect mushrooms to costumers. Every gardener will tell you he knows how to raise them, but it requires an *exact* hygrometrical and barometrical combination of facts and heat to accomplish the feat; with these Mr. Robinson, of London, has told us in his little book on the subject. We can readily raise them "*in an old shoe.*" Look to this, some seeker after a fortune; it offers a resource one hundred times greater than the cultivation of the Black Hamburgh, or even the rose and tuberose.

A 160 pound squash is one of the Calhoun Co., Mich., productions, and a squash vine at Charlotte, Mich., grew 820 feet of vine, and squashes weighing 207 pounds.

The Greenhouse.

Greenhouse for May.

WE may now expect the weather to become much warmer both day and night, so that fires may soon be dispensed with in cool houses without danger from sudden frost, but it frequently occurs that we have some cold storms at the beginning of the month, causing brisk fires to be necessary in warm houses; if this is not attended to, plants often get a serious check, for it must be remembered that plants indoors generally are more tender and less able to bear sudden changes of temperature than they are at the end of the season when growth is firmer and more mature; many plants which will stand full exposure outside later in the season are now quite tender if grown in a warm, close house. This is one reason why those plants required for outside planting should be gradually hardened, and by degrees exposed to full air previous to turning them outside; they will then grow on without any check, but if turned out at once from a close confined atmosphere, it will be some time before a satisfactory growth commences, and if the plants are small, many will die outright; in either case causing loss of time and making the planting patchey and uneven.

Do not be in too much haste to turn delicate plants outside; the last two years we have had quite cold nights as late as the third week in May. We frequently see Egg plants planted when a few hot days come in this month, and these plants are often a week or two later in fruit than those turned out several days later; the first plants being exposed to a few cool nights and, perhaps, a cold storm, have their best leaves destroyed and the plants much injured. It is not safe to plant out such plants as Coleus and Amaranthus before it is fit to plant Egg plant; but even in the North, Verbena should be planted early in the month, to become established before the very hot weather commences. We usually plant ours out about the 20th of April, with the best

results, but the plants are grown in a house from which the frost is only just excluded; so that the growth is short-jointed and not delicate. Carnations and Chrysanthemums for next winter flowering should be planted out about the same time; any half hardy shrubs which have been stored away in sheds and cellars must be planted at once before they commence to grow, or a weak, spindling growth, with deformed foliage, will result. The last winter will be a good test of which plants are thoroughly hardy, and those which only stand out in ordinary winters. We hear that Pampas grass is killed as far south as Washington, D. C.; and the Arundo donax is also killed both in damp and dry situations; this plant is generally considered perfectly hardy. These plants should be examined at once, and if dead or much punished must be removed, and replaced with others; if not, there will be blanks in some of the most prominent places. In some cases it may be advisable to fill, with temporary plants, such as large Dracænas, Cannas, Castor oil plants, Aralias, or other large plants easily obtained. The Eulalia japonica is a first rate addition to our list of grasses with variegated foliage; it is very graceful and perfectly hardy. It is well to start old Dahlias and Cannas on a slight hot-bed, if room has been too scarce to pot them earlier. If dry roots are planted, there is sure to be a few blanks caused by some plants not starting to grow; this is prevented by starting before planting. Camellias, with the exception of a few late flowers, or Candidissima will be now out of bloom and growing fast; shade from bright sun, give plenty of water to the roots and wash the foliage well with hose or syringe; look out for black aphides, which are sometimes troublesome on young growth, fumigate on first appearance, or what is better, give a slight smoke with tobacco occasionally as a preventive. We would advise our readers to procure a good plant or two of Candidissima, if they have not grown this variety; it is one of the best double white varieties, and is in full beauty when other sorts have finished blooming. The flowers do not drop as quick as other varieties. Late in the season the old double white flowers fall when touched nearly as soon as fully open. We find this sort very useful for Easter flowers; when others are over we have plenty of flowers.

Agaves and Yuccas must be kept as cool as possible to prevent early growth before planting or plunging out of doors for the summer. If allowed to grow much, the young leaves become broken and twisted by the wind, and the beauty of the plant is permanently injured. These plants will now require more water; give a good soaking when required.

Pelargoniums should now be in full flower, and will require shade from bright sun, and also ventilation day and night; if shut close the flowers drop away very quickly, and also if cut and packed in a close box; give some weak liquid manure frequently; see the plants do not suffer from want of water at any time; it being necessary to secure a good bloom, to have the pots well filled with roots; the plants become dry in a very short time, causing the flowers to come small and the foliage to turn yellow and fall off.

Fuchsias should be also in flower now or the hot weather will prevent the plants doing much good; give plenty of water, and shade from bright sun.

Gloxinias.—The early plants will now commence to flower, and the later ones be in full growth. If large plants are required give a larger pot as soon as those they are now growing in is well filled with roots; do not water over flower or foliage. A rather close, moist, hot atmosphere is most suitable to these plants.

Achimenes.—Fill baskets with these plants and give same treatment as Gloxinias until established, after which these plants will stand more light to secure a free bloom.

Caladiums will now be grown freely, and if large specimens are required, must have large pots and abundance of water; a slight shade is necessary or the colors will be dull; but these plants if grown in a moist atmosphere require less shade than most other fine foliage plants; in fact, some of the best colored

and largest leaves we ever saw were grown without any shade in a very light Victoria house, in which the air was loaded with vapor from the hot water in the tanks in which the Victoria and other aquatic plants were grown. We hope the aquatic house proposed among the other erections at the Centennial at Philadelphia will be planned with judgment, for it would be one of the most attractive parts of the horticultural department, as there is nothing of the sort in this country.

Eucharis will now require abundance of water both to the roots and over foliage, if plenty of flowers are desired. We still hear complaints of people not being able to flower these plants, which we cannot understand, it being the freest of all plants to bloom, and may be obtained in full flower at any season of the year; we have them in flower all the year round. They are especially useful at Christmas and Easter, especially when, like this year, Easter is early, it is difficult to obtain white Lilies in flower in time, and Camellias are getting scarce, for although Calla Lilies are good for church decoration, they are too stiff and upright for elegant decoration, and also rather common.

Orchids.—These plants will be rooting and growing freely, and will now require much more water with abundance of moisture in the air; this can be given by watering the sand both above and below stages several times in the day, and also by a good syringing overhead each afternoon. Such plants as Ærides, Candas and Phalænopsis will stand a temperature from 90 to 100 degrees sun heat, with a day temperature of 80 deg. fire heat; ventilate freely, especially to the house containing Lycaster and Odontoglossums, shade from bright sun, and be careful in watering not to let the water into young growth—it will rot the hearts from young shoots. Cattleya mossiæ will now be in flower; of these there are many varieties which makes a number of plants of this species very interesting. Dendrobium fimbriatum will also be in flower; this is very handsome when well grown; Dendrobium albo sanguineum, will also be in flower; this is a splendid species which grows most satisfactory on a block. The early blooming Dendrobiums will be now making a free growth and will require extra heat and moisture; any of the late plants of these requiring potting or surfacing should be attended to at once. We may mention that Dendrobium, crassanode and infundibulum are splendid novelties; the flowers will last in perfection for three months on both species, the former in white tipped with delicate rose with an orange eye, and the latter in very large pure white with orange eye; the first flower on this opened the first week in January, and is still good in April, with other buds opening. These species should be in every collection; they are, like other rare plants, rather high-priced. Cypripedium Rælzii will as usual be in flower, with caudatum. and barbatum in variety. Oncidium ampliatum majors, Quaidum and sphacelatum will also be in flower; also the sweet flowering Ornithorhyncon, with the sweet-scented Lycaste cruenta and aromatica; Epidendrum macrochilum in variety will be also in flower last month and this, and the pretty little Aromaticum and the bright orange Vitellinum; many of these species will be grown on blocks and will require frequent syringing to keep them moist. Phaius grandifolium will now require shaking out from the old soil, and all the dead roots and leaves to be cut away, and repotted in fresh soil, consisting of two parts good loam, one part well decayed manure and one part rough peat, with sufficient clean sharp sand to keep it open; see there is no scale on the plants when potted; if the vestita section of Calanthes have not been repotted they should be attended to at once; the same mixture of soil recommended for Phaius will grow these plants well; but it is well to give rather more drainage to these than is necessary for Phaius. Schomburgkias will now have started young shoots; it is a good time to give larger pots if necessary; these plants require abundance of water when growing or the growth is not strong enough to flower. Peristeria elata should be now showing flower, and will require abundance of water if strong flower stems and abundance of flowers are expected; we obtain

flower stems with from 30 to 40 flowers each, and the stems *six feet in height*.

Poinsettia pulcherrima and Euphorbia jacquinæflora, if not cut down should be done at once; any which were cut down early, and the shoots have already started, must be shaken out and repotted in smaller pots, placed in a moderate close house for a time, and removed to a light and airy position in a few weeks, previous to standing out of doors; but little water must be given to the roots until they have started freely.

Ferns and Lycopodiums.—These plants will be now growing freely; some plants required to make specimens will soon require larger pots; this should be done before they get much pot-bound; large plants which cannot have larger pots will require abundance of water to keep a moist atmosphere, and do not admit drying draughts of wind directly on the plants; shade from direct rays of the sun and keep a sharp look-out for insects. Such varieties as Adiantum farleyense require more heat than the Australian and other varieties from temperate climates, and cold or dry cutting winds are ruin to the beautiful foliage; flowering ferns must be placed in a close, moist place and frequently syringed over the foliage, and *never have* any sun.

Palms are now growing very fast, and will require abundance of water at the roots and good syringing over the foliage every bright day; many species form their principal mass of roots at the bottom of the tubs and pots; care must be used that these roots do not get dry while the top soil is moist enough; some species are best standing in pans of water during the hot weather, but they should be allowed to absorb all the water before more is added, or the water becomes stagnant and putrid and decays the roots.

Alocasiæ will now require larger pots; good peat and spagnum moss is best for these plants, with the exception of Macrorhiza variegata and the esculentum varieties, which grow best in a good loam and manure; all these plants require abundance of water when growing, for this reason drainage should be good.

Anthurium Scherzerianum will now be in full beauty; this plant being of the easiest cultivation and lasting in flower for three months, should be cultivated by every one having a warm greenhouse; the flowers get larger each year as the plant becomes stronger; for this reason the beauty of the plant cannot be fairly judged by small plants. We notice an illustration of this plant in a recent number of the Scientific American, which, although not colored, gives a fair idea of the beauty of large plants.

Azaleas, with the exception of late plants, will be now out of flower and making their growth freely; these plants do best in moderate sunshine, but it is a mistaken idea to turn the plants out of doors in full sun to set their buds—they do it much better inside; there is no objection, if short of room in the greenhouse, to turn them out after the buds are set, if the plants are well attended to with water, but do not plunge the pots in a border unless provision is made to prevent worms from entering, or the soil will be so sour that the plants will do little good; keep young plants and choice varieties which are required to form specimens quickly in a warm house and give plenty of moisture—a second growth may thus be obtained in one season; those plants requiring larger pots should be potted at once to obtain pots well filled with roots before winter; look out for thrip and prevent its spreading; see that soil is moist round the roots before potting.

Bouvardias.—The winter-flowering Bouvardias are especially valuable as pot plants for decorative purposes, and also for bouquet making. At Ascot (we learn from the *Florist*), Mr. Standish grows them in very large numbers. Two houses, eighty feet long, are filled with them. In the one house the free-flowering B. Vreelandii, B. Jasminiflora and B. Humboldtii corymbiflora are grown. Taking it altogether, this last is no doubt the finest variety in cultivation. It is an excellent grower, deliciously scented, and a continuous bloomer. The flowers are as large as those of the old Humboldtii, and produced in bunches of a dozen. The individual blooms are three

inches long in the tube; they are used singly, to stand above and relieve the even surface of bouquets, and for this purpose a thin wire is pushed up the inside of the tube, and the stalk of the flower fastened to it. This is to keep them in position, and to prevent their falling over. In this house over 2,000 plants in fine health are grown. They are kept near the glass, and moderate stove heat used all through the winter, without which they do not bloom freely. The adjoining house, also filled with Bouvardias, contains many of the American pink variety, named Bride. The above four sorts are the best in cultivation, and where fragrant flowers are continuously in demand, they are indispensable.

The Chimney Campanula.—To grow a good specimen of this fine old plant, a writer in the *Gardeners' Magazine* recommends the seed to be sown in March, and gets the plants on well during the following summer. It is not at all tender, but a cold frame is a good place for it during the winter. In the following spring turn the plants out of the pots into the open ground, which should be of a sandy nature, consisting of peat, leaf-mould, maiden loam, sand, etc. Insert the plants in the soil one foot six inches apart. During the summer keep them well supplied with water. In the autumn lift the plants carefully, and pot them in the same kind of soil, using nine or eleven inch pots. Give a good soaking with water, and put them in the cold frame for the second winter. Early in the following spring commence to water them with moderate liquid manure once a week, and give them abundance of clean water between. In May or so, you will most probably observe the flower-spikes rising, and if they have been well supplied with water, some six or eight spikes that will attain to six or seven feet, will be developed, and a specimen three feet through will probably be the result, producing an effect that will throw many of our new plants in the shade. There is no plant better suited for cottage exhibitions, etc., than this.

Handsome Foliage Plants.—One of the most striking in appearance of the many types of fine foliage plants to be seen (says the *Gardeners' Chronicle*), in the large show conservatory attached to the residence of Mr. John Wills, Onslow Crescent, South Kensington, is Aralia fastigiata It is a very elegant and handsome plant, with bold compound leaves, each of which had from six to eight petiolate leaflets, somewhat oblong in shape, and bright green in colour. It is a bold-looking and handsome plant, one that would tell in a collection of ornamental foliage plants, because of its great distinctness of character and beautiful outline. Another handsome foliage plant is Dracæna fragrans, a species that is largely grown by Mr. Wills for decorative purposes. The bronzy-green leaves are broad, arched and handsomely pendulous; the habit of growth is very regular and symmetrical. It is especially commended by Mr. Wills as a house plant, to stand in halls and various suitable places in a dwelling. It will last in good condition three months, if watered when required, treated to light, and the leaves kept clean from deposits of dust.

Golden Tinted Spruce Fir (*Abies excelsa aurea*).—This richly colored form of the common Spruce Fir bids fair, when abundant, to become a popular tree for planting in bleak and desolate localities, as the rich hues of the foliage are always best in the winter months. It is perfectly hardy, and is as robust in growth as the green variety.—*Garden.*

Blue Pea.—A plant grown from seed from Abyssinia was exhibited at the Royal Horticultural Society. Flowers were said to be of a charming hue of blue, and most valuable for cut purposes. *The Gardener* says that there is no blue annual to compare with it in color, and believes it identical with *Lathyrus sativus.*

Begonia Model.—A strong growing, profuse flowering form; seems to be well adapted for pot culture and conservatory decoration; flowers are large, well rounded, and of a clear bright rose color.—*From Veitch & Sons.*

Scientific and Botanical.

Succession of Species in Forests.

BY ROBERT DOUGLASS.

"THE question of long vitality in seeds, in connection with the succession of species in forests, maintains its interest. A correspondent quotes an observation of Thoreau's, that squirrels are continually carrying large nuts to pine woods, and the wind pine seeds to oak woods; so that, with the constant presence of fresh seed by these and similar agencies, we need not invent a "great vitality theory" to account for the change. The point is a good one to some extent, though one would suppose the acorns would be ready to grow in the oak woods as well as the pine seeds wafted there by the winds, or the pine seeds in the pine woods as well as the acorns the squirrels brought there. The observation will hardly settle the question to the satisfaction of scientists, who want to know positively, and not possibly, that the seeds have been for many years in the soil without growing. For our part, we know of no evidence that will not bear questioning that seeds usually with a very limited hold on life will live under some circumstances for an indefinite number of years. Whoever will prove beyond all doubt this fact will be among the greatest servants of knowledge. It has a bearing on innumerable problems of interest to us all. We are inclined to favor the view of long vitality, but have to confess the evidence in its favor is not what it ought to be to admit of its being classed with truths."

The above article is copied from the science column of the *New York Independent* of February 11th.

I do not think there is any need of a "great vitality theory" to account for the change of species, neither is there any great mystery as to how the seeds for the new forest are furnished. Although we do not admit of a great vitality *theory*, yet we must not overlook the *fact* that many seeds will germinate after lying in the ground a few years. This fact is well known in cases where plum and peach stones, Juniper berries and many other seeds are sown dry, they will continue to "come up" year after year for several seasons.

It is also very well known that land on which any given kind of tree or plant has been grown for a great many years in succession, becomes exhausted of the elements necessary for the future development of that tree or plant, while still in a good condition for the production of a dissimilar species. The rotation of crops in farming shows that this is admitted by all.

Admitting all this, then, the only mystery is, where did the seeds for the new forests come from?

Before answering, I may be allowed to say that the same question was propounded to me nearly forty years ago by an old Green Mountain farmer, and since that time I have spent a good deal of time in the forests, in different parts of the country, and have found no difficulty in fully accounting for the distribution of the seeds, to my own satisfaction, at least.

In the above quotation from *The Independent*, M. Thoreau says: "Squirrels are continually carrying large nuts to pine woods, and the wind pine seeds to oak woods." This is undoubtedly true, and while it is possible that the wind would carry more seeds than the squirrels, the pine seeds are not as likely to produce trees in oak woods as the acorns in the pine woods. Wherever oak and pine forests are found adjoining each other, it will be found, on close inspection, that many young oaks have inserted themselves among the pines, where they are so densely shaded that it is impossible for them to grow up and reach the light, yet they will live on, scarcely making a perceptible growth, and even when this stunted knarled trunk can endure no longer, and dies for want of light sufficient to mature its leaves, and develop its buds, for the next year's growth, even then it only dies down to the collar, while the root still lives and pushes up another shoot in the spring (or several shoots) to grow up till it perishes like the other, still the roots will live. While this process has

been gradually going on, other acorns more fortunate than the ones above named, have been deposited in openings, or in places where the pines do not stand so close, but that they could grow up, here and there, and form a tree that would produce seeds, which are carried still further into the forests to produce other oak trees, yet so few and scattering that they generally escape notice.

The pine tree cannot survive in like manner in the oak woods. If once shaded so as to lose its foliage, it can neither form new buds nor sprout from the collar, but will be sure to die.

Now we will suppose that this forest is destroyed by fire—most forests are either destroyed in that way or by cutting off the timber, and in the latter case the land is often burned over.

It will be found on examination that every pine tree has been destroyed where the fires have run, for even if the bark is scarcely scorched on the trees, if the foliage and small branches are burned—as they assuredly will be—the trees will certainly die, and the seeds will as surely die, for if they are buried in the ground so deep as not to be burned, they will be too deep to push through, so that we need not wonder that so few pine trees are found to grow where it was nearly all pine before.

Now let us watch the stunted oaks in this once pine forest. They are burned down to the ground, but they, and every oak tree you find not more than six or eight inches in diameter at the surface of the ground, will shoot up with astonishing vigor in most instances, while some will branch low and form *scrubby* trees that will produce acorns in large quantities, while mere shrubs in size.

Then the acorns that have been distributed by the few unnoticed trees that stood before the pines were burned, and were buried in the ground by squirrels, or trodden into the ground by animals, so that the fires did not destroy them, get sunlight, and are in a condition to assist in stocking the forest.

As regards the oak forest that we have supposed to be burned off, and what kind of timber will replace the oaks, I have very little to say. I never saw an oak forest destroyed but what produced oaks again if left to itself.

M. Thoreau says the winds carry pine seeds to oak woods, yet I doubt his ever seeing an oak forest succeeded by pines, unless the pine seeds were distributed by man after the oak forest was destroyed. In that case they would undoubtedly succeed, as they will grow in any soil and climate where oaks will grow, and in many others where oaks cannot grow. There are many species of trees aside from pines and oaks that are replaced by others in forests, and many ways for the seeds to be distributed aside from those already named.

Birds are better mediums for distributing seeds to a great distance than squirrels. It is astonishing how many seeds will be distributed by a flock of Cedar birds or Bohemian Waxwings.

Twenty-four years ago I planted a group of trees on the outer edge of the lawn to screen the view of a neighbor's barn from the front windows. The barn was removed five years ago, and the lot on which it stood nicely planted with ornamental trees. Wishing to open the view, and not liking to cut down the trees, I had them trimmed up so that we could see under them. This left a space of less than a square rod of ground free from grass under three Balsam firs that were trimmed up. I went to sow a little grass seed over this bare spot, late in the spring, but saw so many seedlings coming up of different kinds that I concluded to let them stand and see how many kinds there were. I left them without care till the next season; they were then going on two years old. I made a memorandum of them, noting down the number of each, and to my astonishment, I found thirty-three distinct species of trees, shrubs and vines, and five others I marked doubtful. Of some kinds there were two or three hundred, of others not more than a dozen. True, many of the kinds were growing in my own grounds, but some were from at least a mile distant. The only trees that had seeded in this group was a white pine and two or three Balsam firs, yet there was not a dozen white pines nor twenty Balsam fir seedlings in the lot, but a great many wild

Junipers that grow on the lake shore nearly a mile distant.

These Waxwings feed in large flocks on the Junipers along the lake shore, often alighting on the few scattering white pine trees growing on the Juniper ridges, and under these pine trees we find many seedlings, the seeds of which could not possibly have been found nearer than on my own grounds three miles distant. As several of these seedlings are of foreign species, and no trees of the same kinds growing nearer, they must have been carried to that distance by these birds.

Then again we know that seeds can be carried ten times, or even fifty times that distance by the wild pigeon; they will fly that distance in two hours, or a little over, and in their migrations north and south many of them are destroyed by birds of prey, but they will not devour the seeds on which the pigeon has fed. It is no uncommon thing to find the remains of a pigeon in this locality in the fall, with its crop torn open and a handful of as perfect beech nuts, as any one would wish to plant, scattered over the ground. We know that these nuts must either have been brought from Wisconsin or Michigan, for the tree does not grow in this section.

Many kinds of trees' seeds are formed by nature as if intended to be distributed by the winds. This is especially noticeable in the wing of the pine seed, placed on in such a manner as to give the seed a twirling motion, and carrying it quite a distance, even when the air is very still. Also in the poplars and willows, each seed having a float of down by which they are borne along on the water and prevented from sinking until they reach the shore, aside from the advantage it gives them to float in the air.

Then we have tornadoes and whirlwinds that not only carry seeds, but the trees which produce them to a great distance.

Few men who are at a loss to account for the very general distribution of forest seeds are aware of the enormous number of seeds produced by a single tree. A very moderate-sized birch tree will produce two millions of seeds in a single season, and many other species are equally prolific.

The succession of species among the grasses is quite as mysterious as among forests. When I had resided here two years, I had not noticed a single plant of white clover or red-top grass, but in the summer of 1846 I found a plant of white clover, apparently in its second year from the seed; it grew by the side of the wagon track just outside the village. I dug it up carefully, carried it a half mile, and planted it in my garden. In a year or two, by carefully scattering the seed, I had quite a little plat of it, but, to my surprise, I found it by that time becoming quite plenty along the roadsides, and about the same time red-top grass began to make its appearance. Now there are thousands of acres in Northern Illinois self-seeded with white clover, June grass and red-top, where neither of them could be found thirty years ago. This seems unaccountable at first sight, but when we consider that there are about seven millions of red-top seeds in a pound in weight, we see that the seeds are so small that they could secrete themselves in every chink of every emigrant wagon, in packing materials, such as among the crockery packages. Nearly every emigrant wagon contained a few dishes to commence in housekeeping, and it is but reasonable to suppose that they were, in most cases, packed in a little fine hay, as mine were, and from these and similar accidental circumstances have been produced most of the valuable red-top meadows of Northern Illinois.

Oregon Pine.—A recent test of the relative strength of oak and Oregon pine, made at San Francisco, with bars an inch square and three feet long, showed that the pine was equal to the oak. Both broke under the same weight placed in the middle of each bar, namely, 260 pounds.

At an international agricultural exhibition in Bremen was a collection representing the adulteration of seeds. It contained a sample of sand carefully washed, colored and put up in the best manner, for sale as clover seed, under which name it brought three and one-half cents a pound.

The Flower Garden.

Roses.

Their Cultivation—Varieties, Etc.

[Continuation of Mr. Pentland's Address, read before the Maryland Horticultural Society.]

I SHALL now endeavor to enumerate a few of the best roses as I have classified them, both of old and newer varieties, as they occur to me, and I shall not, as many do, enumerate those in particular that I may have a large quantity of for sale, for I fear that, of very many of those that I shall mention, I could not offer a single plant, and shall only mention such as have some good quality to recommend them, either in color, size, form or good blooming qualities, or otherwise; and the first upon the list that I shall name is perhaps the largest flower of them all, of beautiful form and color, namely, Anna de Diesbach, a bright rose color. Then comes that fine noble old rose Baronne Prevost, brilliant rose; Auguste Mie, bright glossy pink; Caroline de Sansal, flesh color, always beautiful; General Cavaignac, of beautiful form, rosy pink, blooms well; La France, bright pink, none better, and the nearest approach to a perpetual of any; Madame Domage, quite a gem; Comtesse de Chabrilliant, I believe, is the finest formed flower of them all. These are all bright colored. Of the dark dazzling colored varieties we have Triumphe de l'Exposition, always fine and good; Jules Margottin, hard to beat, and generally in the winning stand at exhibitions; General Jacqueminot, known to you all; Geant des Battailles and General Washington—the two last named are among the best grown, as they are tolerably constant bloomers, particularly the last named one; Gloire de Santenay, fiery crimson, beautiful; Prince Camille de Rohan, blackish crimson, fine; Souvenir de Wm. Wood, dark purplish crimson, very effective; Xavier Olibo, velvety black, brilliant, grand. The four last named, in color, form and substance, are hard to beat. Then, of the lighter colored crimsons, we have Prince Leon, not quite so good a grower as the others, but superb; Prince Albert, old but never excelled as yet, in my judgment, as a first-class rose, and blooms constantly, which is a great recommendation. There is one other I will mention in this class, namely, Victor Verdier, a deep rose, of exquisite form, very large, withal a good bloomer. In the hybrid perpetual class there have been so many new ones added to the list every year, that it is difficult to keep pace with them, but in my humble judgment there is as a general thing only a difference in name. True, there are very many besides those mentioned that are really first-class, and worthy of a place in any collection, and very many equally as good as those mentioned. Of the white varieties of this class, there are not very many; the best that I know are Princess Clothilde, Baronne de Maynard, Madame Plantier, all pure white; Madame Vidot, flesh, nearly white, of exquisite shape and always good, and Madame Rivers, nearly white.

Of the *Bourbon* class, I consider the following named varieties among the very best, being both good growers and constant bloomers. I shall name them in the order of merit, and, at the very head of the list, I must place that grand old rose Souvenir de la Malmaison, clear, flesh, and the largest flower—this rose has not been excelled as yet; Hermosa, clear bright pink, of exquisite form, and always reliable, and has never been excelled; Madame Bosanquet, pale flesh, beautiful in bud and of good substance and very constant. I shall never forget the time when, thirty-two years ago, I potted about this time of the year the first plants of the three last named roses that were ever in the United States, together with about thirty or forty others, some of which have gone out of existence, and others again remain to this day (among the best of them was that fine old rose, De la Reine); nor how in the summer of that year I used to watch for the first flowers that were to show us what they were, and when, with my employer, we watched daily for their expanding! And when they did expand what a glorious sight met our eyes! How we feasted our eyes upon their virgin beauty! I felt like worshipping them, and thought that we had reached the

very acme of perfection in rose-growing, and so I think still with regard to them. Didn't we snub off their beautiful flowers quick and despoil them of every flowering bud that they had, and never let them display another flower that year, for fear others might see them! If you had seen how we treated them you would have been very likely to have called us selfish brutes, we cut and mangled them so very fearfully; but at the same time you would have wondered how, otherwise, we treated and guarded them so tenderly, and fed them with the very best food they liked; indeed, had they eaten gold in quantity, I believe my employer would have fed them with it, knowing full well that they were going to return it ten-fold—and so they did. But I digress, and to return; Acidalia is old, but superb, and the whitest flower of this class; Queen of the Bourbons, fawn and rose, very beautiful; Madame Masset, nearly white, a beautiful imbricated flower, like a miniature Camellia; Appoline, light pink, first-class bloomer; Imperatrice Eugenie, deep rose, large and beautiful; Souvenir de Levison Gower, salmon rose, a peculiar color, belonging to itself alone; this rose is called by some the pink Souvenir; it is quite as large as that variety; it is very liable to get mildewed. That very old rose Monthly Cabbage, is one of the very sweetest and most beautiful roses of this class. I knew it thirty-five years ago as the Gloire of France, which is its proper name; George Peabody is one of the darkest roses of this class, and is also a great bloomer. I might mention many others, but I think we have in those quite a sufficiency for a distinct variety.

Bengals.

Of the *Bengal* or *Chinese* class, the best are Agrippina, dark brilliant crimson, of the best form and blooming quality; Archduke Charles, very changeable in color, sometimes one-half of the flower is white, the other crimson red; Louis Phillippe, crimson, a good bloomer and grower; Eugene Beauharnois, amaranth, very beautiful; Lucullus, blackish crimson, small and beautiful; Reine de Lombardy, bright red, vigorous and always pretty; Rival de Pastum, yellowish white, and Indica Alba, pure white, are the only two light-colored roses in this class that I am acquainted with.

Noisettes.

Of the *Noisettes*, the following are always good: Triumphe de la Duchesse, pale rose, and a strong grower; Lamarque, pure white, but rather tender—does best further south; Jaune Desprez, fawn and pink, very sweet, but quite tender; Ophire, coppery nankeen, very pretty and constant; Woodland Margaret, pure white, and one of the most profuse-blooming roses grown; Beauty of Greenmount, carmine color, of beautiful form and fine blooming qualities; Amie Vibert, very pure white, and constantly in bloom, but too tender for this climate, when the thermometer gets down to near zero; Solfaterre, sulphur yellow, a beautiful rose; Madame Deslongchamps, pale flesh, very large, flowering in clusters; Cloth of Gold, or Chromatella, is one of the most beautiful roses grown, but how seldom do you see a perfect flower of it! It is too tender to withstand our winters, but further south it is a most glorious sight to see a wall covered with a plant of this rose; to see the great golden globes depending from every branch, and its fragrance filling the air. Who would not desire to possess a plant of it, in such a condition? I have my doubts of its being a true Noisette at all, but would class it among the Teas, as there is where I think it belongs.

Teas.

And now I come to the last class that I shall mention at this time, and that is the Teas, and the one that I shall place at the head of the list is the Marshal Niel, the best yellow rose, without doubt, yet introduced, although I have heard of one that the French say will beat it. I cannot say, for I don't think any person has seen it as yet, and it will, indeed, be choice if it does surpass it; Gloire de Dijon, fawn, beautifully shaded with yellow, a free grower and bloomer; Sombreuil, white blush tinge, large and very fine; Madame Damaizin, buff, salmon tint, good; Homere, rosy pink, outer petals salmon, globular and very double, very choice and good; La Sylphide, incarnate blush, large and fine; Duchesse de Brabant, peachy pink, very fragrant, a great bloomer, forces

well, a choice rose and hard to beat; Madame Maurin, cream and fawn, large, full and of beautiful form; Adam, salmon and fawn, large, sweet and fine, none better, quite distinct; Safrano, apricot yellow, beautiful in bud, and perhaps the most extensviely grown rose in the whole list; Isabella Sprunt, pale yellow—is a sport of Safrano; the above are all tolerably hardy, and always give satisfaction, being strong growers; Archduchesse Therese Isabella, is a creamy white, large and a most beautiful rose; Caroline, pale, rosy pink, or blush, a fine old rose; Devoniensis, creamy white, sometimes blush in centre, one of the oldest and most beautiful roses we have; Eliza Sauvage, clear white, large and very double, tender and beautiful; Louise de Savoie, pale yellow, large and full, fragrant and first class; Madame Bravy, pure white, centre blush, beautiful form and a free bloomer; Madame Charles, a much improved Safrano in color and form, but not so good a grower as that variety; Triomphe de Luxembourg, buff and salmon, a most beautiful old rose, and always a great favorite; Souvenir de David, dark crimson, the darkest in this class. Those last mentioned are mostly old varieties, and many of them are quite scarce, but they are hard to excel; they do not grow quite so strong as the former mentioned kinds.

New Varieties.

I shall now enumerate a few of the newer varieties, together with some that are really choice, but old ones, and which are only fit to be grown in pots continuously, owing to their extreme tenderness, but which, for their great beauty, are always worthy of a place in the greenhouse or conservatory, at the head of which I shall place that fine old rose called Yellow Tea, which, for delicacy of color, delightful fragrance and beauty of bud, has scarcely a peer, and, in my judgment, has never been excelled; the Viscomtesse de Cazes, yellow with coppery tinge, double and beautiful also in bud; Princess Marie, buff, rosy blush shaded, large and full, most beautiful—this is a very old rose; Lays is a creamy white, beautiful in bud; Madame Margottin, yellow, rose centre, a very beautiful rose; Madame Furtado is one of the best of the newer roses, as is also Madame Falcot, nankeen yellow; Reine de Portugal, a double golden yellow; Olymphe Fraciney, white with creamy shade. I never could see any difference between this and the much-lauded rose called Bella. In fact, there are so many of them that look so much like each other, that it takes a strong discerning power to see the difference in them. There is one other I must not forget to mention, namely, the climbing Devoniensis, which is a most beautiful rose, and quite a strong grower; Jean Pernet is also a very pretty pale yellow rose; Belle Lyonnais, dark sulphur yellow, and one of the very best of the newer roses; Souvenir d'un Amie, bright rose, large and fine, and makes large buds, and is a strong grower; Souvenir d'Elise, a beautiful delicate blush, large, globular and of exquisite fragrance, an old rose that I scarcely hear of any more. The rage for new names has driven many of the fine old sorts out of cultivation, and there are certainly not many of them that excel most of the older varieties. I had, at one time, seven hundred and fifty named varieties of roses growing in one house on my place, and in a situation where I had every opportunity to observe their characteristics, and I must confess that I could not select one hundred distinct varieties from the whole lot, and since that time there have been added to the list of names at least as many more, many of which I know to be most exquisitely beautiful; but I will have to take another occasion to speak of them, when I hope to be able to show what advance has been made, as also to speak to you and tell you how to cultivate them in pots, in order to show to what a state of perfection they may be grown in that way as exhibition plants for horticultural displays, or for decoration of the greenhouse or conservatory, as also how new varieties are obtained, their general propagation, and other matters connected with roses. I will close this paper for the present by a quotation from Leigh Hunt:

"Whatso'er of beauty
Yearns and yet reposes,
Blush and bosom and sweet breath,
Took a shape in roses."

Gardening.

Plants For a Little Garden.

I READ on the outside of cover of your January number: Ask questions freely. This invitation struck me, as coming in a free, hearty manner, which encouraged me to ask for information. The last two days' prospects of this severe weather, passing away, makes me look again out of my little plant house into my garden, and wonder what little alteration I can make; how shall I plant, what shall I plant, and how shall I arrange what I plant, to make my little place a source of greater enjoyment and pleasure to myself, my wife, my family, my friends and passers-by than it was last year? I say passers-by, for I confess I feel flattered when I see such an one deign to pause for a moment to look. I doubt not but that my taste concerning plants *suitable* for planting in a little garden, from which I hope to derive real pleasure during the whole of the season (in the morning before business, in the evening after a day of care and thought), may be different to some, but may agree with others. I consider the pleasures to be derived from a nice drive through a park are of entirely a different nature to that of a garden at *home*. In the park I am in the world, but in the garden at *home*, sitting under my vine or shade tree, with my wife and family engaged with me, examining with my glass, or lens, the almost hidden but exquisite beauty of some newly opened flower. This is one of the home pleasures, and how it refreshes and invigorates the mind, and prepares it for the next day's battle of life. Among the varieties of plants suitable for park decoration, I consider, are Cannas, Coleus, Perillas, Petunias, Wigandias, ornamental grasses such as Arundos, Erianthius, Gyneriums, Gymnothrix and Ricinus. I do not, by any means, say exclude these from the garden—they are good in their place—but I do think there are plants which are capable of affording more solid pleasure than they for the more (shall I say?) sacred parts of the garden. The plants enumerated as suitable for parks you may see and enjoy if you are driving six or eight miles per hour, which I think fast enough for park enjoyment. We do not require a glass to assist us to see the beauty of these things—that I reserve for home amusement. The choice part of my little garden consists of a group of some twenty small beds. I have already a lot of favorites for this spot, but want more. I would be glad to hear of any addition to present collection through your most welcome paper. January number, '75, is the first I have received from you. I have the following that prove suitable: Echeverias, metallica, metallica macrophylla, metallica glauca, secunda, secunda glauca, gibbiflora, gibbiflora metallica, Californica, pumila, rosacea, carinata, Abyssinica, letusa floribunda, letusa glauca, lutea grandiflora and atropurpurea. These stand the sun and drought, with me, without getting in any way disfigured. The most tender appears to be (with me) Californica and pumila. My variety of Sempervivums do not stand the full sun so good; have therefore to select a different place for them; this a loss, for I am fond of them for edging in front of Echeverias. My pet plant is Pachyphytum bracteosum; they seem to welcome the clear shining sun; the bloom of them is very beautiful, too, right through the winter. Some few varieties of Sedums suit me well for edging outside other things, such as Sedum acre; it is such a beautiful dark green, and good all the time; also S. Brownii, populifolium, carneum variegatum. These I can keep in boxes in a cold frame through the winter. I also find a few of the varieties of Agaves very pleasing. Mix in a bed with suitable plants. I use H. Verschaffeltii, filifera, densiflora, jacquineana, heteracantha, sisalana, salmiana, coccinea, applanata, Ghiesbrechtii, and sometimes a neat plant or two of Americana and variegata. Picta is too loose of habit. With these I have mixed Ficus elastica, nitida and Bengalensis: these bear the sun without injury. Intend trying this year Ficus macrocarpa, macrophylla, Cooperi, Chauvieri and Afzeli. Some Yuccas, I find, help to make variety, which is gene-

rally pleasing; Y alocifolia, aloeifolia variegata, aloeifolia purpurea, aloeifolia gigantea, recurva, canaliculata, quadricolor, plicata, conspicua, aspera, nivea, flaccida, viridis, Sieboldi, gloriosa, baccata and krevifolia; but the most beautiful of all is conspicua af Fourcroyas. I use only rigida and interrupta.

For scarlet color I use Geranium, General Grant and some good double variety mixed, the one supplies foliage, the other bloom. But my best scarlet blooming plant is Hibiscus sinensis; its beautiful dark green, glossy, foliage and abundance of bloom renders it all one can wish or ask for. Vincas alba and rosea are indispensable both for bloom and foliage; also being a plant that can be so fully relied upon, feeling quite at home and happy during our warmest seasons. Basella rubra is very fine here, only truly happy when enjoying a good stock of sunshine; neither does it mind a few days of dry weather.

Peristrophe angustifolia aurea I must have on account of its beautiful colored foliage and neat compact habit, but have to keep a few in pots, in reserve in case of failure. Alternantheras, indispensable (character in January No., page 6), Centaurea gymnocarpa and candissima are the most suitable for my place. I find Araucaria excelsa a beautiful centre plant, or Brasiliensis from three to five feet high, according to surroundings. I cannot use annuals, for, as a general rule, they are sown, grow, bloom, die and leave a naked patch. I like a few on the borders with Cannas, Coleus, Lantanas, Ageratums, Petunias, Verbenas, Salvias, etc., etc.

I had forgotten Achyranthes Lindeni so valuable for color of its foliage. Cuphea platycentra is also good.

I have but one out of my many varieties of Caladiums that thrives in sun; I have one, but have no name for it, so I consider that is quite as bad as having only half one.

I should like to hear of any really valuable addition to those mentioned. I don't want what will not stand a good sunning and come out good at last.

A Lover of Flowers.

About Wistarias.

BY A. S. FULLER.

OUR native species of the Wistarias, *W. frutescens*, is found quite abundantly along the banks of rivers in some of the western and southern States. It is one of our most beautiful climbing shrubs, bearing long pendant racemes of bluish-purple, pea-shaped flowers, blooming late in spring or just after the appearance of the leaves.

The plants usually produce seeds quite freely, even when young, and seedlings grown therefrom show a strong tendency to break from the parent type both in characteristics of growth and color of flowers, and this, too, without cross fertilization. Several quite distinct varieties of this species have already been produced, but there is room for many more. The American White Wistaria, *W. frutescens alba*, is rather a dwarfish variety, but blooms freely and is an excellent variety for forcing in winter. The flowers are white, produced in a short but very dense raceme.

Magnifica.—This is also a variety of our native species, but the flowers are much larger and the racemes longer than the above, and of a pale lilac color; it is the most rapid growing of all the Wistarias which I have ever cultivated. The shoots are not as large and stocky as the Chinese species, but grow to a length of twenty or thirty feet in a season even in a moderately rich soil; these shoots, as is pretty well known, are exceedingly tough, equalling in strength an ordinary hemp rope of the same diameter, consequently may be put to good use in tying up other plants to stakes or other purposes.

For the past half-dozen years or more I have cultivated a row of this plant in my garden, and it has furnished a goodly quantity of natural ropes and coarse twine annually, which came in quite handily in tying up bundles of trees and plants, and I think every farmer could afford to set out a few dozen plants for this purpose, if for nothing else. The shoots are stronger than the best basket willow, besides one can obtain ties of greater length. The plants should be cut down to the ground every spring in order to obtain an abundance

of thrifty young canes. This variety also propagates freely from layers, in fact the canes which are permitted to lie on the ground during the summer become well furnished with roots their entire length. Of course, if the plants are desired for ornament the canes must be tied up to stakes, trellis, or trained upon trees or some similar support.

Chinese Wistarias.—These are superior to our native varieties for ornamental purposes, and have few or no superiors among hardy climbing plants. The common Chinese Wistaria, *W. sinensis*, is an elegant, rapid growing, climbing shrub, bearing a profusion of pale-blue flowers in early spring before the appearance of the leaves.

With very little pruning in summer, or by frequently pinching off the ends of the tender shoots, the tendency to climb may be thwarted and a handsome, low-growing, stocky shrub may be produced, instead of a rambling vine. When trained in the form of low shrubs of from four to six feet in height, the Wistarias bloom more freely than when permitted to extend their growth without restriction.

The Chinese white Wistaria is also a handsome variety, although not quite as showy as the blue. The racemes of this variety, under good cultivation, are nearly or quite a foot in length, and appear at the same season as the former, from which it was produced.

There is also a double-blue variety of the Chinese Wistaria, but not, as yet, very widely disseminated, consequently its value is somewhat uncertain.

The name of this genus of plants was given it in honor of Prof. Caspar Wistar, of Philadelphia, Pa., and should be spelled as above and not Wist-*e*-ria as it frequently is in nurserymen's catalogues and elsewhere.

Fungus Plants.

BY S. J. PARKER, M. D.

A VERY interesting course of lectures has been had by Prof. Printess, of the Cornell University, on these plants. Though in a rather scientific, brief style, too abstract, perhaps, yet these lectures have explained to those attending them the reason of rose mildew, wheat rust, some of the mysteries of potatoe rot, hints at pear blight, peach yellows and other forms of injury done to crops of the farmer, and to useful plants. Though I cannot, except in a series of articles, explain the illustrations of the subject of these microscopic plants as he presented them, yet I cannot but say that when the literature of botanic science is so rich on these subjects, it is strange that in a practical form these plants are not in a shape, such that every horticulturist and farmer might understand them. The lecturer began by the cup-shaped minute plant on the Mandrake; explained its so-called "spawn" or spider-web like roots, or in technical language *mycelium* of the plant, how it grew in the leaf, as in a soil, and throve on the top of the leaf, the cup or fruiting apparatus, and the "seeds" or *spores* of the plant. It is these last that are the *mildew* that is visible to the eye of any one, and according to its color, and the plant or place it is on, has the names of *mildew*, *rust*, *blight*, *mould*, *fungi*, *burnt*, *smut* and other popular names. Then he explained the rose rust, and its peculiarities, and went on to the full list, lecture after lecture. Now, all these facts are of vast importance to every one who raises a plant or an acre of wheat or other crop, for they explain what to most persons is a totally unknown cause of the destruction of thousands and millions of dollars worth of the food and useful plants of the world. I only, in this article, call attention to the fact that these matters are explainable, not perfectly, perhaps, but to a great degree; and to the necessity that knowledge like this be diffused in a manner that has never been done before.

Not less useful was his explanation of dry rot, and other forms by which cut timber as well as growing trees, useful for lumber and timber, are affected.

These two subjects are but a part of the beneficial facts that are annually explained in Cornell University as the result of Mr. Cornell's beneficence, and the proper use of the Congressional grant of land for the Agricultural, Mechanical and practical arts of life.

Small Wood-Eating Black Ant.

BY S. J. PARKER, M. D.

MR. STAUFFER, of Lancaster, Pa., describes a minute small ant, whitish in color, that destroys plants in a singular manner. I wish to name another fact; it is the very black shining ant, with large head and neck, but small body, that eats the wood of boxes and receptacles for plants occasionally in this vicinity, the boards of the hot-houses, and wood in similar situations. Moderately damp or dry wood is its choice, and no place so attractive as the tops of my bee-hives; these it penetrates by openings so small as to be hardly perceptible to a common observer; and it honeycombs the top boards, yet not to such a degree that it falls to pieces. The warmth of the hive and the dampness caused slightly by the breath of the bees are its delight. It is torpid in winter, and very active all summer. It occasionally makes covered ways up the posts on which the hives stand. When its channels and nests in the wood are full, it comes out and fills the spaces between the top of the hive and the honey boxes with brood. The smell of the brood and crushed ant is unpleasant. I have never seen the ant in the honey boxes or in the honey of the hive. But it will eat and penetrate to the larvæ of the bees in the hive. It procures large supplies of food by running off on trees, and its running ways to long distances are perceptible. It will not destroy a hive of bees, but does damage and is a nuisance to an apiary. If sources of food are within reach, its damage to casks, boxes, etc., in which large plants are standing is often quite extensive. It takes advantage of decayed cut spots in orange trees and other plants. Occasionally devours a stalk of a plant. I have not studied the various varieties of its workers, soldiers, and male and female insects. Carbolic acid will destroy all it reaches of them. But yet gallons of them them escape in the top of every hive, do the best I can. Brushing is the best way to get rid of them. It must be done every day, if all in reach.

Japan Judas Tree.

BY A. S. FULLER.

I AM not certain whether Japan has ever given us a species of *circis* or not, but somehow a beautiful shrub has got into our gardens under the name of *Circis japonica*, or Japan Judas tree. The first specimen I ever saw was in the old Linnæan nurseries of Prince & Co., at Flushing, N. Y., some twenty years ago, and it was then about eight feet high and six in diameter, several stems rising from the one root, forming a very dense clump, each stem and twig completely enveloped with bright crimson flowers. This was in early spring before the leaves had expanded, and I thought then that it was the most beautiful shrub I had ever seen. I secured rooted layers from that old plant, and have cultivated them ever since. From the same source other plants found their way into a few other nurseries in the immediate vicinity as well as into many private gardens. I consider this species far superior to our native one, the flowers being more numerous, larger and of a brighter color. It is a low-growing, stocky, shrub, requiring no pruning to develop flowering branches; the leaves are large, four to six inches broad, heart-shaped like our native species.

The above does not accord with the account of this genus in HORTICULTURIST for March, page 73, where the writer of "Suggestive Notes" would lead us to infer that there was only one species of *cercis* adapted to the climate of the eastern States. It may be that this so-called Japan shrub is after all a really distinct species not so well known among our nurserymen as I had supposed it was from my own long acquaintance with it. But it is a grand ornamental shrub, no matter what its true name or where it came from originally.

A Rose Without a Thorn.

THE often quoted phrase, "The rose is not without its thorn," is taken as gospel. But there is one instance where even this is out of place.

In clearing up a hillside facing the west, I found several Prairie Roses—they are plenty

in this country, and all but this one as thorny as they well can be. That it is a rose-bush there can be no doubt, for the growth, the wood and the fruit pods all show that it is a Prairie Rose. That the flower is small we can easily judge from the small seed bolls; and what its color is I do not know, but the fact of its being entirely free from anything even approaching a thorn or even prickle, may be the starting point of something new. I will send herewith a small cutting, as well as of the fruit, and you can judge for yourself if it is anything else than a rose. I noticed that it had made two little layers, one of which I will send you in the spring, if you desire it.

Should it prove anything else, of course the floral friends will have a joke on me, but I will risk it. S. Miller.

Bluffton, Mo.

Queries About Virginia Creepers.

THE writer of the article on the "Virginia Creeper and Scarlet Geraniums" must live in California, or some such favored region, to grow Geraniums *ten* feet high, and keep them out of doors all winter. If he lives in a climate where the mercury falls below zero, I *would like to know* what *protection* he gave them through the winter, and what *extra cultivation* to make them grow so tall. I would think it was a misprint, and that the writer meant the *Virginia Creeper* was trained on the wire pyramid, if it were not that he says they were a complete pyramid of *foliage* and *flowers*. Geraniums are a specialty with me; I have grown some very fine specimens, and would like to grow them on as *grand* a *scale* as represented in the article.

A. E. Hartshorne.

New Lilacs.—These are announced in various quarters, and it is only surprising that there are not more of them, for the beauty of this grand, early flowering shrub is proverbial. Among the new varieties referred to, *Ville de Troye*, a dark-flowered and late-blooming variety, promises well, and *Rouge ponctué*, of very bright color, is equally good. *Giant des Batailles* and *de Croucels* are both of them brilliant varieties. The blossoms of *Gloire des Moulins* are flesh-colored, and said to be very fragrant, while *Aline Mocqueris*, of dwarf growth, and a very abundant flowerer, may prove extremely valuable for planting nearer to the fronts of shrubberies than the taller-growing kinds. Notwithstanding all this wealth of novelty, we still find the old kinds alone used in planting of new shrubberies, even the magnificent and well known variety distinguished as *S. Lindleyana* being as yet found in very few gardens.—*The Garden.*

Siberian Arbor Vitæ.—In the valuable address of Mr. S. B. Parsons, published in The Horticulturist for January, is this passage: "The *Siberian Arbor Vitæ* is, however, much superior to it because more hardy." I wish to inquire whether this accords with your experience and that of your readers. Is the Siberian more hardy than the American Arbor Vitæ? Columbia.

Answer.—Each is so thoroughly hardy that we have no means of deciding the point. I never knew either to be injured by excessive cold weather alone. Cold accompanied by severe drought badly injured both a few years since. *Siberian* is a misnomer, it never saw Siberia, being only a form of the American Arbor Vitæ, and going back to the original type from seed.

The English Yew.—A writer in *The Rural New Yorker* says that this, as well as other dwarf evergreens, and especially those of foreign origin, needs a soil for its roots covered or embedded with stones or among rocks. Nature demands for many varieties of evergreens and creeping plants a cool, steady moisture for their roots. If such be supplied, their foliage is not liable to burn and brown; but without such moisture at base, let me say, the man who plants the yew should plant only our American variety.

Fruit Culture.

More About Catching Curculios.

BY M. B. BATEHAM.

SINCE writing the notes on Plum Culture in Ohio, contained in the last number of the HORTICULTURIST, I have received a letter from the Messrs. Brown, giving a more particular description of their method of catching curculios; and as the subject is one of general interest I give the following, as an amendment to the article on page 52:

The implement used for jarring the trees should not be called a "pounder." It is in the form of a crutch, about eight feet long, and is used more as a hook with which to *shake* a tree suddenly than for jarring with a "blow," as the latter mode would be pretty sure to wound the bark at a time when the sap is in full flow.

This crutch or hook is carried on the "catcher," and used by the same person that runs the "machine"—this being found more economical than having a second hand go along to do the shaking.

The Messrs. Brown say that one man will easily go over eight hundred trees in half a day, doing the whole work. Last season they used three machines and three men, going over two thousand trees, twice each day, for two weeks. They went over them once a day for a few days at first, and also at the close, making thirty times in all. It is probable they will find it necessary to continue the operation longer, and that the process will take more time when the trees become a few years older.

Painesville, O.

Quinces.

AT a recent discussion on this subject before the Maryland Horticultural Society, Major King said the cultivation of this fruit, if properly carried on, would prove more profitable to our people than going to Florida and spending their money in the purchase and cultivation of orange trees. In our market quinces seldom sell for less than seventy-five cents per peck—six to eight cents a-piece. This fruit deserves systematic cultivation instead of the careless system of a tree here and there in the corners of fences and in wet places, untrimmed and choked by weeds. Among the varieties may be named the Angers, the Apple, Orange and the Pear Quince. The Angers, though used for dwarfing pears, yields an excellent fruit. The Apple Quince is the most cultivated. The Pear Mammoth is an improved variety of this quince. In New York a grower raised some $500 from one-third of an acre, from the fruit of this variety, the fourth year from planting. The Pear Quince is not so prolific and the fruit is not so desirable as the other varieties. The true cultivation of the quince is very simple and easy—it being a hardy plant. It should be planted in dry, loamy soil, well deepened and fertilized with coal ashes.

Judge Gray thought that the gentleman had rather exaggerated the value of the quince. He had brought them to the market and could not sell them. Would be glad to contract to deliver his crop at $2 per bushel.

Mr. Calkins, of Calkins & Brooks, said, the reason quinces did not sell well in New Jersey was that they ripened with their peaches, and were therefore not as saleable as those raised in northern New York, where the fruit matured later.

Mr. Needham said that difficulty might be obviated by keeping the ground cool around the trees. Many do not know how to cook the fruit properly.

Coal Ashes.—The question of the real value of coal ashes in agriculture has often been raised, but nothing very definite determined. At the last meeting of the Pennsylvania Horticultural Society, Mr. J. B. Jones said that he had found coal ashes exceedingly useful to put around trees, stimulating them, making a good mulch and surpassing in their effects good composts.

Mr. Hoopes said that coal ashes were invaluable for mellowing heavy clay soils.

Mr. Landis had found them very effective as a protection against mice in a young orchard. Dig the ground away and put ashes some inch or two deep, and he had no trouble afterward with mice.

Mr. Carter had tried bone and wood ashes on fruit trees, in comparison, and found the bones far ahead. In fact, he found that wherever he found manure good for corn, it was just the one to suit his trees.

Grafting Cherries. — Inquiries being made as to propriety of top grafting natural cherries, some recommended and others opposed. Mr. J. B. Jones says to graft cherries it is necessary to cut the scions in winter and graft very early before bud swells.

Peach Trees.—President Heiges preferred mineral manures or alkaline salts to animal manures—had succeeded where others had failed. Of four trees of Hale's Early from the same nursery row, three did not produce eight peaches, whilst the fourth gave three bushels. To this one he had applied half a bushel of unleached hickory ashes in the fall, and a peck of the same just when the fruit began to color.

Mr. Pennypacker, from ten Hale's Early trees, had sold last season $32 worth of peaches. Tannery ashes had been used for them.

Mr. Carter suggested muriate of potash as a substitute for wood ashes.

Blight—Pear Tree.

AT the last meeting of the Norfolk (Va.) Horticultural Society, the President, G. F. B. Leighton, in discussing the question of Pear Blight, said:

"Some of you will recollect that in response to inquiries for information on this subject, the Commissioner of Agriculture recommended the use of carbolate of lime with sulphur added, say one pound of sulphur to six or eight pounds of carbolate of lime reduced to the consistency of thick whitewash, and applied to the diseased parts, and where the bark is diseased remove the outer portion before making the application.

I have used this with magical effect on blighted or diseased trees, but in the future I shall use the formula recommended by the Hon. William Saunders, of Washington, who has charge of the public grounds, as being more economical than the above, on account of the volatile nature of carbolic acid, to wit: To a half bushel of lime add four pounds of sulphur—slake to the consistency of whitewash; and when applied, add half an ounce of carbolic acid to each gallon of wash, and apply as above directed.

In answer to questions as to how I dissolve bones, I would remark that I have a large iron box into which I put layers of bones broken into fragments, ashes, etc., as follows: To 100 pounds of bone add 100 pounds of wood ashes, mixed with 25 pounds slaked lime and 12 pounds sal-soda. When packed add 20 gallons of water. In from six to eight weeks the bones will be reduced to a pulp, when a sufficient quantity of dry earth should be added to absorb the ammonia.

Much has been written for and against the cultivation of clover among pear trees as a mulching. As the idea appeared feasible to me, I sowed seed among about nine hundred trees in the spring of 1872. In May last the foliage looked rather sickly, in comparison with those by their side, where clean culture had been adopted, and the clean culture trees held their superiority of appearance until July, when the trees among the clover advanced to equal appearance as those of clean culture. September gave the trees among the clover a decidedly better appearance than those of clean culture. October revealed the fact that the foliage remained two weeks longer on the trees among the clover than on those of clean culture.

While it will require more time with me to make a fair test as to the advantages of this method of cultivation, I am inclined to the belief that trees six years out can be safely and judiciously cultivated under the clover system inaugurated by Mr. Meehan, of Pennsylvania, if properly sustained by surface application of fruit food.

Florida Fruit Growing.

AN active Horticultural Society has at last been started in Florida, known as the Florida Fruit Growers' Association. Among the members appear the well known names of L. A. Hardee and H. S. Hart, the great orange growers of the State. At their last meeting A. J. Bidwell, of Jacksonville, read an essay on grape culture, in which he gave seven years' experience with northern varieties of that fruit. He recommends Hartford, Delaware, Creveling, Ives' Seedling, Concord, Rogers, Nos. 4, 51, 19 and Telegraph for early, and Salem and Rogers No. 1 for late. Of the above, Hartford is the earliest.

He plants 8x10 feet and trains to stakes. In the discussion that followed we learn that the mocking bird and rats are troublesome to grape growers. The cultivation and making of wine from the Scuppernong grape was discussed by Col. M. Martin and others, and a receipt for making orange wine was furnished by James Burt, with samples made in 1873. A national botanical garden in Florida was advocated by C. Drew. Large yellow bananas, grown at Palatka, were exhibited, and an essay on them was read by A. L. Eichelberger, of Ocala (Orange Lake). This gentleman has been growing them since 1852, and now has twelve acres of the "Florida banana" in cultivation. He grows three varieties. He cuts the bunches for shipment from the stock when the fruit is perfectly developed. He cuts the different tiers that form the fruit bunches from the stem, and packs them closely with straw or moss in perforated barrels or in crates. In the discussion Mr. Cunningham pronounced the Martinique the best variety, and said any kind could be cultivated here.

Orange culture, however, was the most interesting topic, no less than three essays being read upon it. It is claimed that the Florida fruit is finer than that from other regions, and its culture must be profitable.

The officers elected, are P. P. Bishop, San Mateo, as President; Hamson Reid, of Jacksonville, Vice-President; Charles H. Walton, Tallahassee, Secretary; J. M. Whitney, Jacksonville, Assistant Secretary; C. Codington, Jacksonville, Corresponding Secretary, and C. Drew, Jacksonville, Treasurer.

West Indian Scenery—Fruits in Cuba.

NATURE, indeed, is very much to be admired, says a correspondent, especially when you are viewing her in orange groves, where oranges, for the trouble of picking them, hang invitingly over your very mouth, seeming to say: "Eat me, stranger."

Some are small and green as gooseberries; others are as big as your head, and of the bright hue to which they give a name. Next on this caste of nature's desert are the heart-shaped, smooth-skinned *Mangoes*, with their massive and symmetrical trees. They are followed by a procession of Lime trees, Citrons, Nisperos, Granada, Maranones, Arrones, Zapotes, Mamoncillos and a host of other fruits with strange shapes and equally odd Hispano-Indian appellations. I grieve to relate that the king of fruits—the Princely Pine-apple—is far from being the exalted personage you would have expected him to be. Like a Bachelor Cabbage, he grovels in solitary state under our feet; he plays at marbles with Pomegranates, and practices tilting at the ring with Citrons. Throw into the scene a few parasites and Plantain trees with slender trunks and colossal leaves, fill in the foreground with gigantic Ferns, Aloes, Palmettoes, and the background with spotless blue, select for yourself, from the nearest hothouse, where specimens of exotic plants are nursed, and you are with a

"Pearl of the Antilles."

The Champion Grape.—F. W. Lay writes to the *Rural Home:* The grape, though by no means of high flavor, is, I think, valuable for its earliness, being about a week earlier than Hartford, and does not drop from the stem like that variety. As I have before stated, it does much better on a light, sandy soil than it does on a strong, heavy one, and should always be grown on such soils, and will here be found of quite good flavor, large and showy bunches, and a free and hardy grower.

Window Gardening.

Vines for both Garden and House.

BY ANNE G. HALE.

VINES are so graceful in their habits, and by their soaring, gliding or clinging growth so readily transform uncouth or decaying architecture into objects of loveliness or grandeur, that we secure a large number of them when selecting garden plants. There is something inexpressibly charming in the rapid growth and lush tenderness of annual vines; and many species after one season of life in the open air will prolong their existence through the winter within doors, if given proper attention, beautifying everything that comes within reach of their curving and curling branchlets or the delicate touch of their clasping tendrils.

Among the best garden vines should be named the old-fashioned Morning Glory—*Ipomœa purpurea*. Its three primal colors—red, blue and white—have of late years been intensified and varied in almost numberless shades and combinations of tints. A package of seeds, purchased at the florists', gives a splendid assortment of these various colorings. Nothing makes a handsomer screen for an unsightly building than a plenty of these vines left to run at their own free will. By assisting the first two feet of their growth they will take any symmetrical shape; train them with cords or bands. Pillars and pyramids of these flowers are elegant and effective ornaments for gardens or any grounds. Long poles having lines reaching from their summit to the base, and these lines fastened to pegs set in the ground, in greater or less proximity to the pole, according as a pillar or a pyramid is desired, form the design. A beautiful floral cross is made by erecting two poles, each twelve feet long, one foot apart, and crossing these at right angles, eight feet from the ground, by a bar one foot wide and six feet long (or by two poles one foot wide and six feet long) and training morning glories upon it. Around the base of these designs plant the seeds in two circles, one outside the other, two or three inches apart. Good garden soil, rather moist, will give luxuriant growth. A location that has little or no morning sun will be most favorable; in such a place the flowers remain open much longer, and the season of bloom will be extended later than if the plants are exposed to much or very powerful sunshine. For out-door growth, plant morning glories in May or June. For parlor vines, to bloom through the winter, plant them in boxes or pots early in October, that they may get well started upon a vigorous growth by the influence of the open air.

Phaseolus multiflorus, the Flowering Bean, with its racemes of elegant scarlet or pearl-white flowers, is a splendid vine. The dense foliage of this and the ipomœa renders them very desirable for screens. It needs the same care and training as the ipomœa, and the same designs are suitable for it; but, unlike that, it will bear full exposure to the sun. Cut the flowers just before they are ready to fall, then the vines will continue to bloom till the frost comes. This too is an annual; but it needs so much sun it does not thrive so well within doors as some other vines.

Tropœolum majus, the Garden Nasturtium, is a favorite flowering vine. This also has been greatly improved within a few years, and we have its gorgeous blossoms, from the faintest canary-yellow to the deepest maroon color, passing through all the gradations of orange and scarlet. A sandy soil gives the best flowers; if very rich, or too moist, there will be plenty of leaves with few and inferior flowers. The plants may be trained to a wall by means of strings, but they make a finer appearance rising in a pyramidal form about a stake—five or six feet is the proper height for such a stake. A small dead tree or a pile of brush affords excellent support for nasturtiums, and when the plants are in bloom are objects of great beauty—the brush may be made to take the form of a huge basket, vase, lyre or an animal. Soak the seeds in warm water till tender to the touch, then plant them by laying them on the soil and sifting sandy loam

upon them to the depth of an inch. Branches of these vines, taken in the autumn and set in pots of loose sandy soil, will become good window plants, growing and blooming all winter. The double tropæolum is frequently seen among parlor plants, but its blossom looks too much like a bunch of scarlet rags to be admired. A very lovely parlor vine is the perennial tropæolum, with its ivy-like foliage and small neat flowers. Nasturtiums (tropæolums) are most effective in large isolated groups; their colors and their peculiar style of foliage do not harmonize well with those of other plants. For this reason the blossoms when cut should be kept by themselves; a dish or a vase of nasturtiums only, in various tints, is much handsomer than a collection including several species of flowers. Their rich velvety petals are finely contrasted by delicate green ferns—carrot leaves, when ferns cannot be procured, are a very suitable accompaniment. Except that we associate ideas of the vegetable garden with the carrot leaf it would be extensively used as the foliage of cut flowers, and for other ornamental purposes; if called by its botanical name, *Daucus*, its graceful pinnatifid form of soft rich verdure would be in great request. Evelyn, the old writer on "Gardenage," tells us that the ladies of Queen Elizabeth's court used carrot leaves as plumes for decorating their hair.

The Sweet Pea, *Lathyrus odoratus*, must receive early attention; its blossoms of delicate beauty and delicious fragrance will be indispensable for summer bouquets. Next to rosebuds stand sweet-pea flowers among the best garden productions for nosegays or for personal adornment. Beside the old-fashioned varieties of pink and white, and lavender and purple, we have now scarlet, scarlet and white, the various shades of pink, and the purest white; an elegant hedge may be made of these by planting an assortment of seeds and training them, like common garden peas, against sticks or brush. By cutting the flowers as soon as they begin to fade—that the strength of the plants need not be expended in perfecting seed—the vines will grow to the height of six feet and blossom continually till late in the autumn. The sweet pea needs light rich soil; grows handsomely against a pillar or if trained to form a pyramid. Soak the seeds twenty-four hours in warm water, then plant them in the same manner as nasturtium seeds.

Quamoclit vulgaris, the Cypress Vine, is a beautiful plant, and its charming scarlet flowers, though so short-lived, added to its handsome foliage, make it very fine for screening and ornamenting a clumsy porch or dilapidated piazza. Some persons complain that the seeds of the cypress vine are a long time germinating, and sometimes never come up. These difficulties will be obviated by pouring scalding water upon the seeds and allowing them to remain immersed a day before planting. They need about the same covering of soil as sweet peas. Give them soft, rich mould in a sunny location, and train upon a trellis or along strings.

Maurandia Barclayana, with its long and slender vines of the most vivid green, hung with white, crimson or purple bells, is one of our handsomest vines. It is very lovely trained upon a trellis, but still more beautiful when suffered to droop from a balcony or to run riot over a portico or the eaves of some low building. It grows best in a sunny exposure in rich damp soil. Cuttings of these maurandias are easily rooted in the autumn for parlor vines, are excellent for basket growth, and two pots, each containing a thrifty plant, placed upon brackets at either side of a recessed window will completely embower it with luxuriant growth.

Adlumia, climbing fumitory, mountain fringe, must not be forgotten. This delicate vine, with its elegant light green foliage and pale pink flowers, should be in every garden. It needs a shady location and rich light soil. Being a perennial, it seldom blooms till the second year. Plant the seeds beside a lattice and help its slender tendrils in and out the interstices, and you will be well rewarded for your pains; before the summer is over the lattice will be like an exquisite living picture—a perfect fairy bower, from which sprays and festoons of its beautiful foliage sway in the breath of the lightest breeze.

Liquid Manure for Pot Plants.

THE beneficial results obtained from manure water, when judiciously applied to fruiting and flowering plants, have long been recognized by cultivators, and its use is now becoming more general. It is well known that the roots of plants are more healthy when growing in pure soil free from rank manure, and these roots will draw up more healthy nourishment to the plants from manure given in a liquid state, than when they are encased in rank material which they cannot consume. We know that our most successful grape-growers use very little solid manure in the soil, only a few bones or bone meal, or similar material, which cannot give off more stimulant than the plants can consume, and also remains much longer in the soil as a fertilizer than manure, which dissolves rapidly.

The successful florist has more faith in giving simulants when the plant really needs them than in keeping the roots buried in soil made rich and almost offensive by strong manure. When roots are few and the plants almost at rest, the purer the soil and the less stimulant the plants receive, the better will they thrive when their roots come to draw up larger supplies of nourishment. Moisture is needed to soften the soil and to allow the roots to extract nourishment from it; but when all the virtue is out of the earth, and the plants begin to show signs of distress, all the watering in the world will not give vigor to the exhausted functions; but let a portion of guano or any well-prepared manure be mixed with the water sufficient to color it, and let this be repeated at every watering instead of giving a much stronger dose at longer intervals, the result will be most satisfactory. I have tried a number of experiments this season with liquid manure, and all lead me to have faith in the application of it, at every watering, in a weakly state.

A number of old fuchsias were stunted and pot-bound, but pressure of more important matters prevented our potting them into fresh earth; but to each watering a coloring of guano was allowed, and the plants with their pot-bound roots have not only made vigorous growth, but flowered freely from June onward till November. Some Pelargoniums, which were cut down last season and allowed to break in the usual way, were shaken out of the pots and placed in smaller ones, but, when they should have been shifted, they were allowed to remain in the small pots, which were crammed with roots; guano-water was given at all times when they required moisture; the plants grew and made fine foliage, and flowered better than others which were favored with larger pots and fresh soil. Many other examples I could give to prove that giving liquid manure frequently, and not until roots are in abundance to consume it, is the proper way to deal with this important assistant to cultivation.—*Florist.*

Room Decoration.—There has stood on the table of a room in my house, for thirteen months without a break (says a writer in the *Gardener's Magazine*), a nice young plant of Corypha australis, and in the course of that time it has not lost a frond, but has made six new ones that are as healthy and well developed as any one could wish. The room which this palm adorns is not particularly well lighted, and the light comes from one side only; yet the plant is as symmetrical as if it had never been out of a first-class plant-house. The room is sometimes cold and sometimes warm, and is occasionally well filled with tobacco smoke. But these varying conditions make no difference; the plant persists in thriving, and illustrates in a most pleasing manner the adaptability of this class of plants to domestic purposes.

Phylloxera.—A plan of destroying the Phylloxera (according to the *Revue Horticole*) has been devised by M. Denis, of Lyons. In the winter, when there are no herbaceous growths, the base of the vine stem is laid bare to a depth of 10 in. to 12 in., and boiling water, mixed with a small proportion of tobacco-juice, poured into the hole round the stock. Farmyard manure, or by preference sheep-dung, is then added, and the soil returned to its place.

Editor's Portfolio.

The Central Park Commissioners.

Some of the recent acts of the Commissioners of our famous Central Park are attracting great attention, and subjecting them to very severe criticism.

At a late meeting of the Board, the office of Landscape Gardener was abruptly discontinued, and a determination evinced to stop the management of all the Greenhouse Conservatories and sell the entire collection of plants.

Immediately after Prof. Demcker's discharge (which the Board said was on the ground of economy) three new gardeners were appointed at twice Mr. D.'s salary—for what? Think of it—to demolish work already done.

A beautiful little forest of one hundred acres had been laid out in the upper part of the park, designed to shelter the other parts of the park from cold north-west winds, and also to help in providing a necessary degree of moisture for the vegetation of the park. The idea was a splendid one; the forest, carefully planted, had been taken care of for several years, and was growing thriftily; trees were of all sizes from 2 to 6, 8, 10 and 12 inches in diameter. The *first work of these new gardeners was to begin to cut these trees all down.* A more monstrous error in Park management never was heard of. The very thing that for five years over five thousand journals in the United States had been encouraging, viz: *more tree culture*, this Board blindly ignored and rushed recklessly to the work of tree destruction for no assignable reason.

Another scene occurred a short time ago at one of their meetings which will make them remembered for years, with laughter, by every botanist in the United States. They instructed the *Head Landscape Gardener* to prepare a complete list of all the trees, shrubs and plants in the Park. He did so. Although it required him six weeks time and two assistants, the Board thought he could do it in a few hours. This list—a very large one, certainly—of the proper botanical and scientific name of every plant was submitted to the Board. After considering it a little while, they replied: "Why, here; this is not what we want; we want only the *common names such as the people know.*" The gardener replied: "Those I can't give you—I do not know them all; besides, many trees do not have any common names." "Why, yes; here you have *Acer;* what does this mean?" Answer: "Maple." "But why don't you name them Sugar Maple, etc.?" "Well," said the gardener, "I might give a few common names, but there are twenty sorts of maple which have no common name only that given properly by science."

As the Board could not understand why botanical names could not be translated, and from it a "common name" made up and given to it, they refused to accept the Gardener's list. As a curiosity, the gardener wrote to six florists of reputation, requesting them to give him the "common name" of a certain plant (he giving the true botanical term). From the six parties over *nine different local "common names"* were received for the same plant. The gardener desired to submit this to the intelligence of the Board, to convince them of the impossibility of using or inventing "common names" for everything, but he was advised not to do so—"*they would not like it.*"

The Board fosters architectural decorations, and permits expenditures for any fancy they, the architect and his friends, advise. Some say that the buildings drag along, and cost three times as much as they need to, so that the architect may make a nice thing of it in the way of five per cent. commission. We do not wish to assume the responsibility of such insinuations, but when we see the Board unwise in the management of its gardening and landscape departments, it is probable it will be criticised in all other points—sometimes with perfect justice.

During the past eight years there has never been appointed on this Board a single man who exhibited genuine love, interest or care for "good gardening." It has been filled with

politicians and business men. No invitation to join this Board has ever been extended to any Horticulturist in or near New York, nor have we ever known any one connected with the Board know enough to tell how to take up or transplant or prune a tree, or tell the difference between a Deutzia and a Spiræa. Probably four out of five Park Commissioners do not know anything of the beauties of the Erianthus Ravenna, or the Cannas; the beautiful Weeping Elm or Purple Beach have no charm for them—and a glorious display of flowers to delight the eyes of children and admiring ladies, would be a prodigal waste, although the gardener can produce them at little expense.

As a beautiful example of the light which illumines the financial wisdom of the Board, we may mention that by permission of the Board an order was given for the purchase of three thousand street trees, diameter 3 to 4 inches, price 75 cents each. The landscape gardener said they could not be bought for that; the Board thought they could, and so advertised in the *daily papers* (not the garden journals). They never received any proposals. The landscape gardener wrote to twelve nurserymen, and in no case could they be obtained for less than $3. The Board did not know the difference between a tree of 1 inch and one of 4 inches. How should they when they do not know one tree from another?

When will our city ever be ruled by "Commissioners" who know their duties well? When will the Mayor ever appoint Commissioners who can think more sensibly of parks and their needs than of politics and favorites?

Death of Paschall Morris.

We learn with regret of the death of Paschall Morris, editor of *The Practical Farmer*, Philadelphia. He was closely interested in dairy, stock and poultry matters, and succeeded in maintaining a lively and practical interest, in his journal, regarding these topics. As the only agricultural journal of Philadelphia, it was highly esteemed.

Eucalyptus Again.

It is absolutely useless for inhabitants of the United States east of the Rocky Mountains or north of Georgia, to attempt culture of the Eucalyptus, but in any climate where the temperature does not fall to or below 32°, Fahrenheit, there its dissemination will be a public benefit.

M. Gimbert, who has been long engaged in collecting evidence concerning the Autralian tree *Eucalyptus globulus*, the growth of which is surprisingly rapid, attaining, besides gigantic dimensions, has addressed an interesting communication to the London Academy of Science. This plant has the singular property of absorbing ten times its weight of water from the soil, and of emitting antiseptic camphorous effluvia. When sown in marshy ground it will dry up in a very short time. The English were the first to try it at the Cape, and within two or three years they completely changed the climatic condition of the unhealthy parts of the colony. A few years later its plantation was undertaken on a large scale in various parts of Algeria. At Pardock, twenty miles from Algiers, a farm situated on the banks of the Hamyze was noted for its extremely pestilential air. In the spring of 1867 about 13,000 of the eucalyptus were planted there. In July of the same year—the time when the fever season used to set in—not a single case occurred; yet the trees were not more than nine feet high. Since then complete immunity from fever has been maintained. In the neighborhood of Constantine the farm of Ben Machydlin was equally in bad repute. It was covered with marshes both in winter and summer. In five years the whole ground was dried up by 14,000 of these trees, and farmers and children enjoy excellent health. At the factory of the Glue de Constantine, in three years a plantation of eucalyptus has transformed twelve acres of marshy soil into a magnificent park, whence fever has completely disappeared. In the Island of Cuba this and all other paludal diseases are fast disappearing from all the unhealthy districts where this tree has been introduced. A station-house at one of the ends of a railway viaduct in the department of the Var was so pestilential that the officials could not be kept there longer than a year. Forty of these trees were planted, and it is now as healthy as any other place on the line.

Tree Planting Extraordinary.

The *Pacific Rural* mentions the fact that Mr. G. T. Stratton, of Brooklyn, has sold, besides other orders, 60,000 Eucalyptus trees this season to two individuals. G. P. Jones will transplant 35,000 on his land north-west of Berkley, and E. C. Sessions, 25,000 on the low hills back of Brooklyn—all in Alameda county.

A New Fashion.

Practically, Americans do not want to hear or know anything of Fungus. It is too disagreeable a subject; but the study of it is absolutely imperative, if we wish to guard our trees and plants against destroying agencies, which are mysterious, yet deadly to life in the "Poison Valley." An English paper, in speaking of this Fungus fashion in England, says:

"The first Fungus Exhibition held in Scotland was opened in Aberdeen on the 18th instant. The idea of the exhibition was first suggested by the Rev. Mr. Ferguson, of New Pitsligo, in the "Scottish Naturalist" for April. The suggestion was readily taken up by fungologists and men of science, and the result was an exhibition which gentlemen entitled to speak with authority say was never equalled in this country. The specimens numbered about seven thousand. Almost every county in Scotland made large contributions, while England and Wales sent a number of exhibits. In fact, almost every fungologist in Britain contributed specimens. A considerable proportion of the Fungi belonged to the larger classes, such as Agarici, Boleti, Polypori, etc.; but there were also large collections of microscopic Fungi, and very important additions to the British flora. Several species of Fungi new to science were exhibited, and some splendid specimens of Sparassis, which is very rare, were to be seen. Several fine specimens of Fistulina hepatica, Polyporus sulphureus and Phlebia radiata were much admired. There was a specimen of Helvella gigas, from Heathcot, near Aberdeen, a species only once before known to have been found in Britain. Among the edible Fungi was an enormous specimen of Lycoperdon giganteum, which had been gathered at Fetternear, in the north of Scotland, numerous specimens of Cantharellus cibarius and Boletus edulis. Several specimens of fossil Fungi, which are very rarely found, were exhibited. An excellent collection, gathered on Moncreiff Hill, and sent by Sir Thomas Moncreiff, included a fine specimen of Sparassis crispa. Another prominent specimen of the same was included in a valuable collection from Huntly Lodge."

Fruit Culture in Michigan.

The enormous extent to which fruit culture in Michigan has reached, may be inferred from the following statistics, collected from official sources the past year:

AREA PLANTED TO FRUIT.

Acres of Orcharding	237,061.00
" Vineyards	1,007.64
" Raspberry bushes	946.52
" Strawberry vines	1,647.32
" Currant and Gooseberry bushes	386.37
Total acres of fruit	241,048.85

FRUIT PRODUCT FOR TWO YEARS.

	1872.	1873.
Apples, bushels	7,236,471	5,927,875
Peaches, "	318,454	22,031
Pears, "	33,932	40,857
Plums, "	6,301	3,667
Cherries, "	60,958	66,746
Strawb'ries, "	50,420	48,922
Currrants and Gooseberries, bus'ls	36,484	40,562
Totals, bushels	7,743,020	6,150.660
Pounds of Grapes	2,323,500	2,960,100

Floriculture in South America.

A correspondent of the *Cleveland Herald* thus writes of scenes of tropical splendor, and the public encouragement of gardening at Lima, Peru. In referring to the beautiful Alameda, long avenues lined with Palm trees and otherwise highly ornamented, he says: It is not an exaggeration to say that if the contents of a hundred thousand greenhouses and hot-houses were promiscuously scattered over a large plain, the effect would scarcely approach the appearance of these grounds. Upon entering them, long avenues of the umbrella tree greet the eye, their broad leaves so closely folded over each other that no beam of light can penetrate; the shadowy beauty heightened by a chaste arrangement of large vases between the trees, filled with rare plants of every description. Weeping willows, with their delicate drapery, sweep the edge of little lakes, whose swans and variegated water-birds drift around lazily. Banana trees, with clusters of fruit, in every stage of lusciousness, are

seen, here and there, amid the stately palms, while the large family of the palm (seen in every direction, with their great variety of foliage, including the graceful palmetto, filling in with the undergrowth) make a fine study for the botanist. Orange and magnolia trees, reflecting the light with their polished leaves like mirrors, add wondrous brilliancy to the thickly interwoven foliage of other trees. Around one frame, the Wistaria, with its clusters of many-shaded purple blossoms, is thrown, and around another twines a vine, with leaves and blossoms a blood-red, producing the exquisite effect of autumnal effects in mid-summer. We lifted up the low hanging branches, and passed into a small arbor formed of low shrubs and the intertwined, overhanging branches of trees. The air around us was heavy with the fragrance of yellow Jasmine, the pure cape Jasmine, and the mingled perfume of queenly-looking roses, roses softly tinted, roses in bud, half-opened and full bloom, that were hung in Nature's own graceful way among the bushes, and on vines that crept around and far up into the branches of trees. As we walked along, myriads of flowers that we knew not appealed to our hearts, through their rare loveliness. A very trysting place it seemed, for all in the floral kingdom, where the heavens above and the earth beneath unite to bring to the highest state of perfection these specialties of God's handiwork. The Chinese coolies were working around the beds, transplanting, pruning and training, with their world-renowned skill, the reckless growth of nature. We wound around, as in a labyrinth, coming upon few places where a fair perspective could be obtained—indeed, we were closed in on every side by an almost impenetrable forest of buds and blossoms. Statuary we met everywhere, white-robed spirits, as it were, in the voluptuous world around them. A large lake, with small pleasure boats moving over the quiet water, was an absolute relief to the eye. Little irrigation streams, walled in on three sides by stone, cross and re-cross each other, and by their swift motion a murmuring song was softly echoed through the air. A large arbor, entered through a rustic gate, incloses a pond, which we found covered with lily plants, the ripples of the wind just disturbing a little their waxen beauty. In our northern gardens only a few months in the year does nature court us with her beauty, but here, during *every* month in the year, an exquisite army of flowers is marching in unbroken procession through this fairy land, noiselessly disturbing the inflorescence of different buds and blossoms. The waxen-like Camellias, from pure white, blushing deeper and deeper through all the shades of pink, into vivid scarlet, variegated, and banded with white, form a haughty family of beauties. In turn come the shy little Anemone, in love with the spirit of the wind; the Quaker-like Mignonette (darling among flowers), scattering its fragrance around so subtly one knows not "whence it cometh, nor whither it goeth;" the Heliotrope and Tuberose intoxicating the very air with their perfume; Geraniums, delicately scented, and flush with coloring; Pinks, single and double, and re-double in their full perfection; Salvias, drooping their flame-like blooms among rich leaves; Oleanders, Pansies, Lilies and a host of other plants, some with the soul of fragrance, others with mere passion-beauty; some, pure and pale and cold in distinguished loveliness, and woven among them all, the infinite variety of foliage plants, striped with russet-brown, veined with blood-red, silvered over with downy fuzz, large plants and small, making a woof of gaudy appearance.

Wild Flowers and Insects—Curiosities of Floriculture and Rural Life.

In the recent scientific convention at Belfast, the lecture of Sir John Lubbock, on the relations of insects to wild flowers was received with great applause, and considered a great achievement.

The lecturer made an elaborate exposition of the services rendered to flowers by insects, and the numerous processes of fertilization and propagation thus effected were minutely explained. A correspondent of *The Tribune*, in dissecting the lecture, said: "I have rarely seen an audience so much absorbed in any scientific discourse, whatever. A friend of his, by whose side I had been sitting at dinner,

told me a fact which I may take the liberty to repeat as a most striking example of exact observation, and of that talent for minute attention which lies at the root of so much scientific capacity. He spent hours at a time, she said, and days in succession, watching the coming and going of bees among the flowers. The problem that he was bent on solving depended on the movements of individual bees, and he came at last to identify the individual bees, to distinguish between the flight and return of one and another, and so to determine, among other things, what degree of information they communicated to each other respecting their journeys and their acquaintance with particular flowers. That the bees were marked is possible, but the anecdote, taken in connection with the results shown by the lecture, is scarcely less wonderful. The young lady who related this had herself shared in the investigation, which, again, did not make it less wonderful. I select a single passage for quotation, which will show the style and method of the lecturer.

"One other peculiarity of flowers is explained if we take this view of the relations of insects to flowers. Many flowers close their petals during rain, which is obviously an advantage, since it prevents the honey and pollen from being spoiled or washed away. Everybody, however, has observed that even in fine weather certain flowers close at particular hours. This habit of going to sleep is surely very curious. Why should flowers do so? In animals we can understand it; they are tired, and require rest. But why should flowers sleep? Why should some flowers do so and not others? Moreover, different flowers keep different hours. The Daisy opens at sunrise, and closes at sunset, whence its name, day's eye. The Dandelion (Leonted or Taraxacum) opens at 7, and closes at 5; Arenani inbra is open from 9 to 3; Nymphea alba from about 7 to 4; the common mouse-ear Hawk-weed is said to wake at 8, and go to sleep at 2; the scarlet Pimpernel (Anagallis arvensis) to wake at 7, and close soon after 2; while Trogopogon pratensis opens at 4 in the morning, and closes just before 12, whence its English name, 'John go to bed at noon.' Farmers' boys in some parts are said to regulate their dinner by it. Other flowers, on the contrary, open in the evening. Now, it is obvious that flowers which are fertilized by night-flying insects would derive no advantage from being open by day, and, on the other hand, that those which are fertilized by bees would gain nothing by being open at night; nay, it would be a distinct disadvantage, because it would render them liable to be robbed of their honey and pollen by insects which are not capable of fertilizing them. I believe, then, that the closing of flowers has reference to the habits of insects, and it may be observed, also, in support of this, that wind-fertilized flowers never sleep, and that some of those flowers which attract insects by smell emit their scent at particular hours; thus Hespien matronalis and Cychins vespertina smells in the evening, and Orchis bifolia is particularly sweet at night."

Death of S. R. Wells.

The death of S. R. Wells, which occurred on Monday, April 12th, of typhoid fever, will be heard with regret by many who have known him personally, and have met him as friends or acquaintances in the frequent excursions to the West, which he joined. He had built up a large and flourishing business in books and publications relating to health, mental science, and physiological subjects. And we are glad to say every publication bore the impress of a high moral character, and a really useful endeavor to help others to make themselves men and women of useful lives. He was an orthodox Christian, ardently devoted to temperance, and a ready patron of agriculture, horticulture, and art.

Special Prizes for Essays.

The Massachusetts Horticultural Society offer four prizes for the best essays on Horticultural Topics, and give the benefit of the competition to all persons, whether members of the society or not. The prizes are as follows:

For the best essay upon the Culture and Varieties of Roses; to be read during the Rose Exhibition, Thursday, June 17, $25.

For the best essay upon Grape Culture in gardens and on buildings, with a list of varie-

ties best adapted to such purposes; the essay to be read on Saturday, October 9, $25.

For the best essay upon the Culture of the Cauliflower and other vegetables of the Cabbage family (*Brassica oleracea*); the essay to be read on Saturday, November 6, $25.

For the best essay upon the principles of Landscape Gardening as applied to small suburban estates; the essay to be read on Saturday, November 27, $25.

The essay upon Rose Culture must be submitted by the first Saturday in June; all others at least one month before the day for the reading of the essays.

Essays should be addressed to the Committee on Publication, Horticultural Hall, Boston, Mass.

American Pomological Society.

We are unable to give, in our reading pages, sufficient space to all the announcements of the American Pomological Society, and our readers will find them in the first few advertising pages adjoining. We notice considerable discussion at the early date fixed for the meeting at Chicago. Most of the western people prefer it should be a week or so later, since the fruits to be exhibited would be in greater plenty, and more visitors would come to the city. We judge the suggestion of a date a little later, is quite advisable, and the society will have a more successful meeting to do as the western members recommend.

W. C. Flagg, the new secretary, is waking up the western horticulturists, and anticipates a very successful session.

Rose Catalogues.

The catalogues of roses and plants, sent us by Miller & Hayes, are dainty indeed. Dressed in most beautiful paper and printing, they equal in taste even the charms of the lovely floral gems they describe within. We know of no rose catalogue in America superior to theirs.

Root's Garden Manual.

J. B. Root, of Rockford, Ill., has issued a very practical and entertaining manual, on the culture of garden vegetables. It contains twenty pages or more of short, pithy notes on garden crops, and as far as we judge from Mr. Root's reputation is exceedingly reliable.

New Plants.

R. Buist, Sr., of Philadelphia, forwards to us his catalogue of new plants, in which are so many desirable things we cannot possibly enumerate even the best. We notice that Mr. Buist expects to retire from his business in 1876, and all his valuable collections will soon be offered to the public.

Plate of Roses.

The plate of roses, issued this spring, by Peter Henderson, has been very generally admired. The colors are very soft, and the printing has been very well done. It would be difficult to say which, of all the varieties, were prettiest. Such beauties as Madame Margotten and Marie Sisley, need no critics.

A Charming Fruit Farm.

N. Ohmer, of Dayton O., sends us a lithographic sketch of his well known fruit farm. It is really a beautiful sight, and tempts us to go there for a long visit. His place is very systematically laid out; and being already so well grown and developed, the trees make groves of dense regularity. Upon his place are 2 acres grapes, 2,125 pear trees, 1,364 apple trees, 300 quince trees, 1,244 peach trees, 1,500 dwarf pear trees, with a large space by acres devoted to small fruits.

Proceedings Montgomery County Hort. Society.

The proceedings of this society, for year 1874, are sent us in pamphlet form. The society seems always to have a good time; good dinners, good addresses, and the discussions are very enjoyable.

Grape Catalogues and Manual.

Bush & Son & Meissner, of Bushberg, Mo., have issued a grape manual, which, as far as we have knowledge, is the very best of any dealer in the country; contains over eighty pages, descriptive of the principal varieties and culture, with such hints upon vine management, and diseases, as will make it of great value to every one who owns a grape vine. The directions, however, are principally adapted to the western country, in the valley of the Mississippi.

American Pomological Society.

ORGANIZED 1848.

FIFTEENTH SESSION.

President, MARSHALL P. WILDER, Boston, Mass. *Secretary*, W. C. FLAGG, Moro, Ill.

Treasurer, THOMAS P. JAMES, Cambridge, Mass.

Biennial Membership, $4.00. *Life Membership*, $20.00.

WHEREAS, The American Pomological Society has accepted the invitation of the Illinois State Horticultural Society, to hold its next Biennial Session in the City of Chicago, in 1875:

Therefore, in conformity with said acceptance, the undersigned give notice that the Fifteenth Session of this National Association will be held in Chicago, commencing WEDNESDAY, SEPTEMBER EIGHTH, at 10 o'clock, A. M., and continuing for three days.

All Horticultural, Pomological, Agricultural, and other kindred associations, in the United States and British Provinces, are invited to send delegations, as large as they may deem expedient, and all persons interested in the cultivation of fruits, are invited to be present and take seats in the Convention.

The coming season will be especially interesting, from its location in the centre of the great fruit-growing region of the West, and, it is believed, will be one of the most important and useful that the Society has ever held. On this occasion there will be brought together the best cultivators and fruits of our widely-extended country, when may be examined and compared the fruits, not only of the cooler climes of the North, but of the South, the West, and the Pacific Slope. It is therefore very desirable that every State, Territory, and Province of North America should be fully and ably represented in this Convention, thereby promoting the advancement of one of the great resources of our national wealth,—the extension and perpetuation of the amicable and social relations which have heretofore existed among the members of the Society,—and the diffusion throughout the land of our deliberations, for the benefit of our constantly expanding territory.

It is confidently hoped that there will be a full attendance of Delegates from all quarters of our country, thereby stimulating more extensive cultivation, by the concentrated information and experience of cultivators, and aiding the Society in perfecting its Catalogue of Fruits This Catalogue includes fifty States and Territories, most of which have their columns filled with a great amount of information as to the fruit adapted for culture in the respective locations. Many of these are yet incomplete, and it is the object of the Society, from year to year, to fill the blanks, and bring its Catalogue nearer to perfection. To accomplish this object as fully as possible, the Chairman of the General Fruit Committee, P. BARRY, Esq., Rochester, N. Y., will send out the usual circulars of enquiry, and it is desirable that these enquiries should be answered at an early day. The various State and Local Committees are urged to respond to the circulars as soon as practicable.

When we reflect on the vast importance of the great industrial interest of fruit culture not only in a pecuniary, but sanitary, point of view,—when we consider the new territories constantly opening for occupation, all of which are to be supplied with their appropriate varieties of fruit, and that upon this National Society, in a great measure, devolves the duty of ascertaining and promulgating what are adapted to each locality,—we fell justified in urging

upon the Local Committees of every State and District, who are the means through which the desired information must be collected, the importance of an early and thorough discharge of that duty, by a prompt response to the circular of the Chairman of the General Fruit Committee.

The Society having already, at its last session, accepted the invitation to participate in the International Exhibition at the Centennialel Cebration in Philadelphia, in 1876, it becomes necessary, at the approaching meeting, to make all requisite preparation to carry out the arrangements for that occasion, in a manner which shall be alike honorable to the nation and useful to the great industrial interests which our Society represents.

Arrangements will be made with hotels, and as far as possible with the various railroad lines terminating at Chicago, for a reduction of fare. Whenever possible, it would be best that such arrangements should be made by the various delegations, with roads in their localities, as rates made by Chicago roads will apply only to their lines.

Members, Delegates, and Societies are requested to contribute collections of the Fruits of their respective districts, and to communicate in regard to them whatever may aid in promoting the objects of the Society and the science of American Pomology. Each contributor is requested to prepare a complete list of his collection, and to present the same with his fruits, that a report of all the varieties entered may be submitted to the meeting as early as practicable. By vote of the Society no money premiums will be offered, but a limited number of Wilder Medals will be awarded to meritorious objects.

At the same time and place with the Pomological Society's Exhibition of Fruits, the Illinois Horticultural Society will hold a Grand Exhibition of Plants, Flowers, and other products of Horticulture, by which an increased interest will be given to the occasion.

Packages of Fruits, with the names of the contributors, may be addressed as follows: "American Pomological Society," care of O. B. Galusha, Chicago.

☞ All persons desirous of becoming members, can remit the fee to Thomas P. James, Esq., Treasurer, Cambridge, Mass. Life membership, Twenty Dollars; Biennial, Four Dollars. Life Members will be supplied with back numbers of the proceedings of the Society as far as possible.

MARSHALL P. WILDER, President, Boston, Mass.

W. C. FLAGG, Secretary, Moro, Ill.

Newspapers and Periodicals that take an interest in Pomology, are respectfully requested to publish the above.

The Secretary, for the purpose of securing a more complete statement of facts, solicits copies of all publications relating to Fruit and Fruit Growing in all the States, Territories and provinces of North America.

PROGRAMME OF BUSINESS.

HOURS OF MEETING.

WEDNESDAY, 10 o'clock in the morning, and 3 o'clock in the afternoon.

THURSDAY, 9 o'clock in the morning, and 3 o'clock in the afternoon.

FRIDAY, 9 o'clock in the morning, and 3 o'clock in the afternoon.

RULES FOR SPEAKING.—Five minutes, and no person to speak more than twice on the same subject without leave.

WEDNESDAY, 10 A. M. Introductory Exercises; Appointment of Committees, viz.: on Credentials, on Nomination of Officers, on Record of Fruits Exhibited, on Award of the Wilder Medal.

3 P. M. President's Address; Reports of Committee on Credentials, and on Nomination of Officers; Election of Officers; Reception of Treasurer's Report; Discussion in regard to Preparation for the International Exhibition of 1876, at Philadelphia, in which the Society has voted to participate.

THURSDAY, 9 A. M. Reports of Standing Committees; Discussion of the value of Fruits enumerated in the Catalogue, as indicated by stars, to be called by the Secretary, in alphabetical order, as follows: Apples, Pears, Grapes, etc., etc. At the close of each division, statements relative to new varieties will be received.

3 P. M. Continuation of the morning's session.

FRIDAY, 9 A. M. Reports of Committees on Fruits Exhibited; Reception of Essays; Continuation of discussion on values of fruits, as per Catalogue, and introduction of names of new varieties.

3 P. M. Completion of Discussion, Resolutions, etc.; Adjournment.

ESSAYS.

Invitations have been extended to the following named gentlemen to prepare papers, as many as practicable of which will be read at the meeting.

Prof. ASA GRAY, of Massachusetts,
Prof. GEORGE THURBER, of New York,
JOHN J. THOMAS, of New York,
D. W. ADAMS, of Iowa,
T. T. LYON, of Michigan,
ROBERT W. FURNAS, of Nebraska,
Dr. WILLIAM M. HOWSLEY, of Kansas,
B. S. FOX, of California,
Dr. JOHN A. WARDER, of Ohio,
Dr. C. C. HAMILTON, of Nova Scotia,
G. F. B. LEIGHTON, of Virginia,
D. REDMOND, of Mississippi,
Dr. H. A. SWASEY, of Louisiana,
GEORGE P. PEFFER, of Wisconsin,
P. P. BISHOP, of Folrida,
C. V. RILEY, of Missouri.

The subject of Mr. Lyon's paper will be "The Climate and Soils of Michigan, and their adaptation to the growth of the finer varieties of Fruit;" Dr. Howsley's, "The Confused Nomenclature of the Apple;" Mr. Fox's, "The Production of New Varieties of Pears from Seed;" Ex-Gov. Furnas', "Fruit Culture in the West;" and Mr. Peffer's, "The Production of New Varieties of Fruit from Seed to Insure Hardiness;" but at this date the subjects of the other papers are not decided upon.

It is hoped also to have Reports and Essays from the following named persons who were appointed or invited to prepare papers for the last session, but were unable to respond at that time, on the subjects then assigned to them:

W. C. FLAGG, Illinois, Report on the Cause of "Rotten Root" of the Apple Tree in the West.
WM. SAUNDERS, District of Columbia, Report on the Theory and Practice of Pruning.
THOMAS MEEHAN, Pennsylvania, on Fungi on Fruit, and Fruit Diseases, as Cause, Result, or Concomitants of one another.
Dr. E. S. HULL, Illinois, on Root Pruning, and how to grow the fairest fruit.
P. BARRY, New York, on How to Grow and Keep Pear Trees in vigor and shape.
ROBERT MANNING, Massachusetts. Is there a permanent decline in the Apple Tree and its Crop in New England?
A. S. FULLER, New Jersey, on the Culture and Varieties of Small Fruits.
WM. PARRY, New Jersey, on the Cultivation and Varieties of the Apricot and Plum.
W. C. BARRY, New York, on the Keeping and Ripening of the Apple, Pear, and Grape.
F. R. ELLIOTT, New York, on the Cherry.

American Pomological Society.

To

Chairman Fruit Committee for State of

DEAR SIR :—

At the last meeting of the American Pomological Society, held in the city of Boston, September, 1873, you were elected Chairman of the Fruit Committee of your State. The duties of this committee are thus defined in the By-Laws of the Society:

"State Fruit Committees, consisting of five members each, for every State, Territory and Province represented, and a general chairman over all, shall be appointed biennially; it shall be the duty of the several State Fruit Committees to forward to the general chairman, one month before every biennial meeting, State Pomological Reports, to be condensed by him for publication."

It has been customary for the State Fruit Committees to appoint their associates, and you are now respectfully requested to organize your committee at the earliest moment practicable, by selecting the most competent and trustworthy persons, in different sections of your State, to aid you in collecting the information desired by the Society. This information you will arrange in the form of a report, and transmit to me as early as the 20th of August next, if possible, that I may be able to present the Report of the General Fruit Committee on the opening of the session, which is announced to be held in Chicago, Ill., on September 8th, 9th and 10th, 1875.

The nature of the information sought for, in your report, can be ascertained by reference to the published Transactions of the Society, and may be stated briefly as follows:

1. What SPECIES of fruit, as Apple, Pear, Peach, Plum, Cherry, &c., &c., are grown in your State successfully?

2. What VARIETIES of these fruits have proved to be best adapted to your State, and of the greatest value? The degrees of merit should be stated according to the scale adopted in arranging the Society's Catalogue, viz.: Those worthy of cultivation designated by one *; those of great superiority and value two **; those recently introduced and promising, a dagger, †. In your report under this head you will note the changes, if any, that should be made in the catalogne, as it now stands, for your State.

3. Synonyms, or the various names under which the same variety is known or cultivated in your State.

4. What Insects and Diseases are injurious to fruits and fruit trees, and what remedies or preventives have been successfully applied?

5. The kinds of soil and situation best adapted to the different species of fruits. The best system of pruning and training; cultivation or treatment of the soil among fruit trees; gathering, packing, keeping, and marketing fruits, and any interesting particulars on the subject within your reach.

The Society does not wish to impose great burdens on its committees, and therefore answers to the 4th and 5th series of questions may be omitted where circumstances may render it difficult or impossible to give them.

Answers to 1, 2 and 3 are necessary to enable the Society to extend and perfect its work.

If you find that you will be unable to discharge the duties of Chairman of your State Fruit Committee, you will please notify me or the President as soon as possible after the receipt of this circular, and mention the name of the person, in your judgment, best qualified to perform the service.

Asking your kind co-operation in this important work,

I am, truly yours,

P. BARRY,

Chairman General Fruit Committee Am. Pomological Society.

ROCHESTER, NEW YORK, April 1, 1875.

MY CATALOGUE

FOR THE

SPRING OF 1875,

CONTAINS DESCRIPTIONS OF FINE

Bedding Plants,

In great variety, including, also, an admirable assortment of new and beautiful

FRENCH HYBRID GLADIOLUS,

which are offered in large quantities at **LOW RATES.** Also

The Newest Azaleas,

The Newest Cannas,

The Newest Amaryllis,

AND FINE GREENHOUSE

RHODODENDRONS.

My Catalogue may be had, FREE OF CHARGE, by addressing

GEORGE SUCH,

SOUTH AMBOY, NEW JERSEY.

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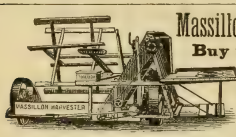
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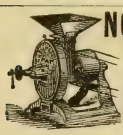
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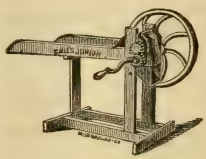
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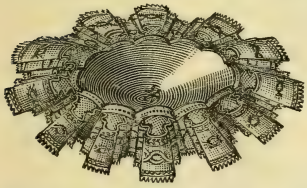
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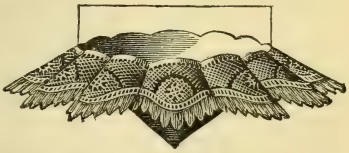
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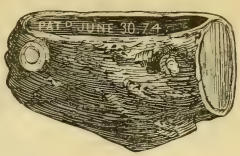
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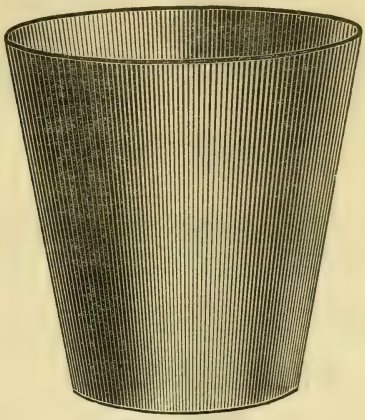


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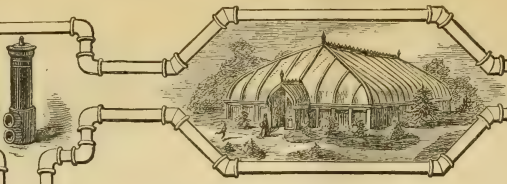
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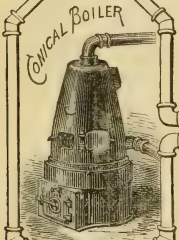


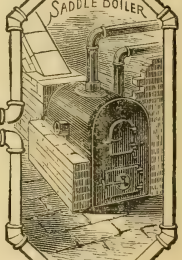
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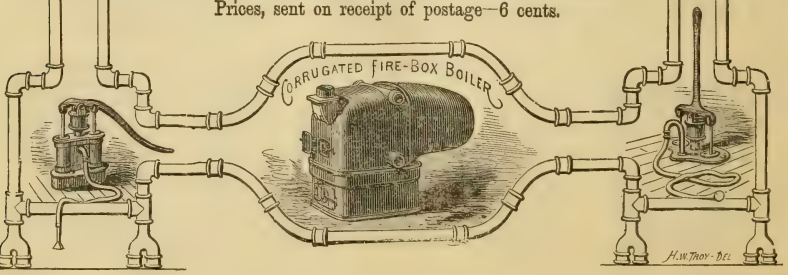
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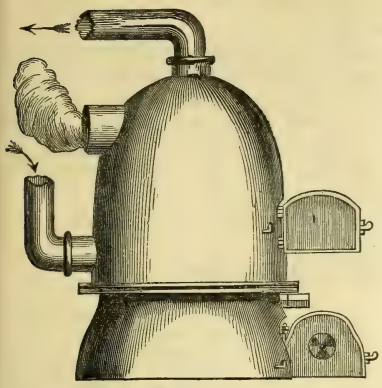


Fig. 1

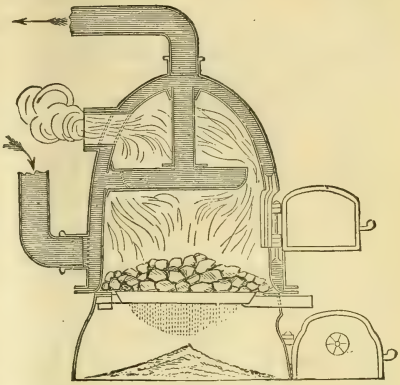


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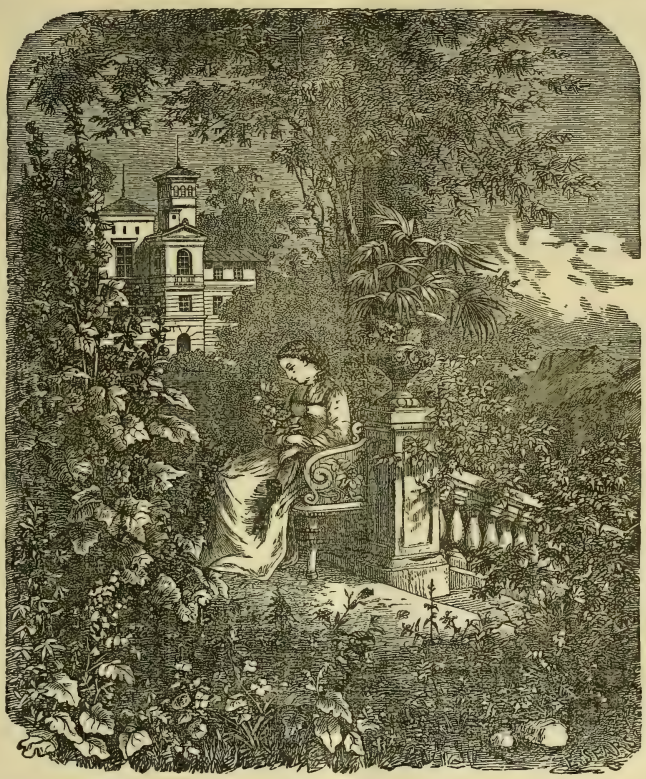


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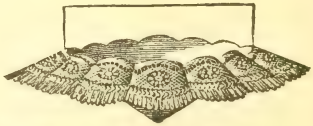
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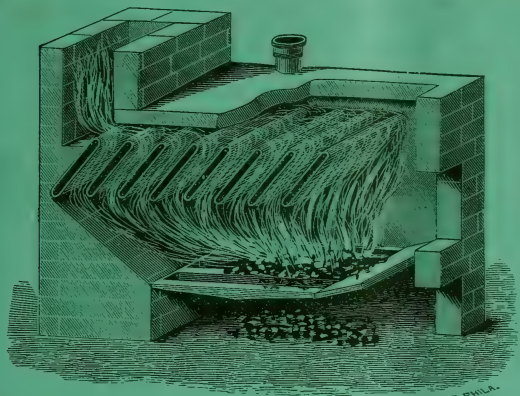
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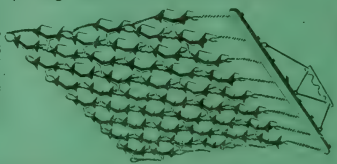
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VOL. 30. JUNE, 1875. NO. 348.

Special Contributions.

The Ivy.

FROM childhood I have loved the ivy. Looking back through a vista of almost twenty-five years, I see, as if a scene of yesterday, an old farm-house in the earliest settled portion of Pennsylvania; an old old house, whose grey stones were ivy clad; whose mossy roof was ivy covered; whose rugged chimneys were ivy capped. Each quaint window peeped forth from dense masses of ivy, and the gambrel roofed porches seemed hidden amid the ivy garlands. The vine from which this mass of verdure was produced was at its base nine inches in circumference, and must have been planted at a very early day. It was (of course) perfectly hardy, and grew with such vigor, that each spring the pruning knife or shears was used ruthlessly in order to admit light and air through windows and doors. Reaching the roof and chimney tops, it spread forth yards of "fruiting branches," which were covered with clusters of rich purple berries. From comparison with various descriptions and from personal examination, I have concluded that this old plant was an English Ivy, "Hedera Helix." Mr. Shirley Hibberd thus describes this variety.

"*The handsomest and most hardy of the colored species. Grows very free and robust; the young leaves are of a light, bright grass green, the older ones, large, dark green and with whitish veins; in winter shaded with chocolate color, and very glossy.*"

During the later portion of my life I resided in another of the old American homes, situated in Delaware, and here was another ancient ivy, which a very old lady told me had been given to one of her ancestors, and was a cutting from the ivy growing over Lochleven Castle, in which the unfortunate Mary Queen of Scotts was so long imprisoned. This vine resembled my *old* favorite in many respects, but the leaves were not so large, nor so deeply serrated, and the fruit was of lighter color. In another one of these homes of our fore-fathers, resided a friend who owned an immense ivy of strikingly different kind. It was more tender, requiring protection during winter

around the roots, and would nevertheless lose many of its leaves. It never grew very high, although the main stalk was seven inches in circumference, and the growth rather dwarfish, but very dense and compact. The leaves deep green and small, the fruit orange or orange yellow, according to age; I think it was the Chrysocarpa.

Between fifty and sixty species have been discovered and named, but three however, (of the Ivy proper), are ordinarily cultivated in this country. These varieties are · Hedera helix, or English ivy, Hedera grandiflora, or Irish ivy, Hedera corcacia, or Colchican ivy. The climbing varieties are: Gracilis, Tortuosa, Lobata major. In the latitude of New York, Philadelphia, and Wilmington, Delaware, the ivy is perfectly hardy and grows most luxuriantly out of doors (or at least it did in my girlhood days); but since my sojourn west of the Alleghanies, I find it impossible to raise it, save as a house plant, and as such I have paid particular attention to it, and have it in luxuriant profusion from the vestibule to the kitchen dresser, for, say I, why not give our domestics something pretty and cheerful to look at, and endeavor to raise their ideas to love God's beautiful works. So it comes to pass that the old "Aunty" of ebon complexion, in *our* culinary department, has her window seat of plants and her ivy-clad dresser, which I am loath to admit often outrival the "pets" of the conservatory. The ivy luxuriates in rich, light soil, so I use two parts good garden soil, and one (generous) part well rotted cow manure, one part saw dust or "cocoanut refuse." Through this I also mix a portion (equal to one part) of charcoal well broken, in pieces size of a pea, or pieces of broken pottery. I make a good drainage at bottom, of broken sandstone or pottery, of an inch or more.

In April, I take tender young branches, from four to six inches in length, place in a box of warm damp sand, laying them rather longitudinally so as to cover two eyes. I then cover with a tumbler if in a pot, or with hand glass (of five panes of glass) if in a forcing box, and such a box and glass are very valuable for all cuttings. In about two weeks these cuttings will have formed roots, when with a large spoon or trowel, I remove into pots or boxes of prepared soil, and give enough water to moisten thoroughly. In June, place on the portico or plunge in the border. In October, bring again to the porch, take out a portion of the soil and renew; wash the leaves well with soap suds, and sprinkle, and before frost remove to winter quarters, but do not keep too warm. During the winter give a weekly stimulant of manure water, one bushel old hen or cow manure to a barrel of soft water, one-half a pint of this liquid to four gallons of warm water. (Other stimulants will answer).

The variegated sorts should never be potted in rich soil nor have any stimulants, as this will mar the beauty of the markings. This rule holds good with other bright or varicolored plants. Ivy loves moisture and shade, and above all cleanliness. After a good sponging and sprinkling, each dripping leaf will seem to give you thanks for the refreshing bath. Give as much air as possible, and plenty of light for the variegated sorts. When a plant grows old enough to produce berries, it may be propagated also by planting the seeds, which however is a slow process. Layering also is a usual way of increasing the number of plants, and this is always a very desirable mode. Take a branch with several "eyes" and either lay it upon the ground and put an inch or two of moist soil upon it, with a few pieces of stone to keep it in place, or peg a young branch into a pot of soil; in either case the roots will form in a week or two, and may then be cut from the main stalk and repotted. An old plant which is growing luxuriantly, when it has attained the utmost height of wall or trellis, has a habit of throwing out young branchlets, called by florists "fruiting branches," and if examined it will be found that these differ somewhat from the main or parent plant in foliage and bark. These young branches are propagated by grafting or budding, and often the top of a frame or chimney will appear as if capped by a young hedge from a foot to several feet in height, of young, tender and vivid green leaves.

The ivy is at once the most attainable, the most beautiful and satisfactory creeper we have, either for balcony or house cultivation. It will grow with even ordinary care, and indeed oftentimes without any, and in almost any location or soil. Its glossy, varnished and leathery leaves enable it to withstand various changes of temperature, and alike in shade or sunshine, heat or cold; once established, we find the hardy varieties climbing over rocks in rich profusion, festooning the pillars of the palatial mansion, or covering the thatch of the humble cot—an ornamental wreath, twining the richly carved portico of a living screen, hiding deficencies of ornament and paint in the dwelling of the more humble.

The ivy may be particularly recommended as a house plant, for although in our southern and middle states it is perfectly hardy, in the western and northern states it appears difficult to keep it through the severe winters. But as it is well adapted for a house plant, those who value its beauty and loveliness will find it admirable and satisfactory for indoor decoration of various kinds. Trained around the mouldings of doors and windows it forms a beautiful and graceful finish, and also as an arch over folding doors. Alone or mixed with other plants in hanging baskets, or on plant stands, its dark green foliage will be found a beautiful object. No plant is so readily fashioned into beautiful and artistic shapes. Wire and a few laths, and you may form, arches, crosses, crowns, and indeed an innumerable host of beautiful objects, around which it will gracefully twine. The hall, the drawing room, the social center table, or the festive board, are alike beautified by its graceful festoons, while as well it forms the canopy under which the lovely bride "plights her troth," or in that solemn hour when some loved one is given to the cold earth, "dust to dust and ashes to ashes," it forms the cross, or wreath or crown; and in decorating God's house it is sought for as the most appropriate and beautiful symbol.

In Germany, where it is used by rich and poor for indoor adornment, it will be found trained over the doors and arch of the vestibule, up the staircase, around lamp posts and brackets, in the arbor-like recess, where stands the piano or sofa; as a wreath or arch over some favorite statue, or framing the face of a beloved friend; as a screen in the dwelling, or in the stores around the supports of the shelves or lining and arching the windows. In *Window Gardening*, our "mutual friend" Mr. Williams gives us some beautiful imagery regarding the ivy. He says: "Its presence (it must be admitted), with its entwining luxuriant foliage gives a refreshing and pleasant look to every apartment; of uncounted worth is it in homes where garden facilities are few or none, and a sprig of green is considered equal to the nobleman's wide and rural estates." Again, quoting from a favorite author, he says: "A single root has been known to wreath a bow window with thick garlands, and then strike off into lovely independent paths along picture cords and above the cornice, till the room seemed all a-bud like Aaron's rod. It will cover a screen of wire, curtain curtainless window, festoon a pillar, frame a favorite picture (and what more graceful or delicate frame could be desired?), arch a door, climb and twist about a window sill, and swing in long-looped tendrils from a bracket. There is no end to its beautiful uses."

Although this lovely plant will flourish best in damp rich soil, it is adapted to almost any situation, will bear various changes of temperature, and is not at all sensitive in regard to light. If permitted to dry out it will show the effects of the neglect, but at the same time it must be kept *well drained*. The variety called Kenilworth or Coliseum ivy (Linaria cymbalaria), is a delicate and lovely trailer, growing readily in a light sandy soil. The leaves are small and purple upon the under surface. It grows in massive but delicate and graceful profusion on the tops of old buildings in Europe. The roof and turrets of the old cathedral in the city of Milan are thickly covered with it, and it appears to come tumbling forth from the damp recesses between the embrasures of the windows and towers. The flower is very delicate white and lilac, with a little straw color about the stamens. It is a

beautiful object for the hanging or wall basket, and is readily propagated from cuttings or seeds (which sows itself). In *Window Gardening* we have some beautiful designs for *baskets*, *vases*, etc. for the ivy. An iron frame for an ivied garden seat, wall baskets for stair case, several hanging baskets and stands, and a receptacle to be placed behind frames; for this last I have found the flat tin oyster can to answer admirably. Make a good drainage and fill with earth, then plant the ivy and suspend from the pictnre or minor nail, with cord passed through a hole in the can. Vials of water thus suspended behind frames will keep ivy fresh and growing for months, and often the finest plants are thus formed. As there are many persons distant from floral stores or who have not the means to purchase articles to decorate their various apartments, I will add a few simple vases, boxes and baskets of home make.

Window Box for Ivy and other Plants.

Make a box to fit the window and not less than six inches deep, nail a lath to the upper and lower edge, cover the whole with heavy brown paper. Make leaves of the same paper by cutting in triangles and folding, also six rosettes or flowers for the corners and center. Tack the leaves one over another, reversing at the center, where place one of the rosettes (above and below). Varnish the whole with shellac, and then with copal, and you will have a tasteful box. The rosettes may be made of various styles. I cut six scolloped, circular pieces, each one smaller than the other.

Wall Basket for Ivy.

Take any wooden bowl or box of desired size, make a decoction of logwood chips or burnt umber scalded in vinegar, stain the bowl and hhving sawed in half, nail against the wall, each side of a door or staircase. Take three two-forked branches (with the bark pulled off here and there) of grape vine branches or roots; nail against the bowls with ends interlapped, to form a net work; fasten the three single ends together at bottom and nail on a bunch of cones, leather leaves or acorns, and also an edge of the same around the top; stain the whole and when dry varnish. If a handle is desired, make of twisted grape vine. C. S. J.

The Greenhouse.

Greenhouse for June.

PLANTING outside should now be complete unless ungenial weather has prevailed during the end of May; in this case, such plants as Coleus and Caladiums have, in some instances, been reserved under glass a short time later than usual, but the earliest opportunity should be now taken to complete all planting operations; for we must now expect hot, dry weather, which is not favorable for fresh planting; the plants become thoroughly dry before the roots have started in the fresh soil. It was so cold and stormy that we could not plant out our Verbenas until the 27th of April, and it is not unlikely that more tender plants will be planted later than usual from the same cause; this will prevent a general regulation of the houses until later in the season than usual, but all the more hardy plants should be at once placed in summer quarters, which must be sheltered from the wind and in partial shade, but not under the drips of trees. Precautions must be taken to prevent the entry of worms in the pots of large plants, either by standing the pots on bricks or a good thickness of coal ashes; there is nothing better than coal ashes for plunging pots out of doors, it absorbs moisture and also drains the surplus water away, and keeps the roots cool; this is one of the advantages of plunging pots out of doors. If the pots are exposed to the dry air of our summer, even when not exposed to sun, many of the feeding roots are killed, and the plants become unhealthy and a prey to various insects. As a case in point, a gentleman from California mentioned, recently, that his Camellias did much better when plunged; in fact when turned out of doors without plunging, he obtained no flowers the following winter, and we have frequently seen poor, scrubby Azaleas from the same cause. In one instance the plants being placed in full sun, standing on boards, as a natural result the plants were dust-dry and smothered with red spiders. If

the plants are in good condition when plunged no other precaution is required to prevent the wind from blowing them over, but if not plunged, precautions must be taken by staking and tying, or there will often be pots and plants broken from that cause, besides the loss of time in fixing the plant in place again. All outside pot plants will require frequent attention in watering both at the root and overhead.

Pelargoniums will now be in full flower and will require abundance of water, with ventilation day and night, and shade from bright sun. As soon as beauty of bloom is past, the plants must be placed out of doors in a light place, to ripen the wood previous to cutting down. Fancy varieties are best placed in a shady frame with plenty of air. These sorts do not keep well during the summer if treated the same as the strong flowers.

Geraniums intended for winter blooming must be potted into the flowering pots and plunged out of doors; give plenty of water and cut the flower stems away as they appear. Small plants of any choice, variegated varieties, it is desirable to keep in pots, must be grown in a shady place as cool as possible.

Fuchsias must be kept as cool as possible with shade and plenty of moisture in the air; if grown in a close hot-house at this season, the foliage will fall off before the plants finish blooming.

Cyclamens must be placed in a shady place or planted out on the north side of a wall; here they require no attention in watering, and will take care of themselves.

Double Primulas must be placed in a cool, shady place, where little watering will be required; the same may be said of Primula Nivea, which is a perfect little gem, but little grown in this country. It is nearly related to the Primula auricula so much grown by English amateurs but seldom seen in this country, for the reason that plants import badly, and our hot, dry summers, and cold dry winters make the introduction difficult.

Coleus.—A few plants of the best colors should be potted into eight or nine inch pots for growing indoors to fill up any odd corner in the greenhouse, or for decorating on a special occasion. By pinching the shoots frequently, the plants will make dwarf, compact bushes; but do not pinch too late, or the full size and color of the foliage will not be developed. Princess Royal, Queen Victoria, Golden Beauty and Chameleon are good for the purpose. When the last named variety comes in good color it is very beautiful.

Heliotrope.—If it is not convenient to plant out any on wall of greenhouse for winter cutting, a few plants must be grown in pots for that purpose. A few old, woody plants if cut in during summer and repotted in good soil, kept growing outside until risk of frost, and then grown in a warm greenhouse will give quantities of cut flowers during the winter months, and also furnish cuttings for propagating.

Calla Lilies should be now placed out of doors in full sun, and receive but little water during the next three months; the foliage will decay, but that does not injure the plants; they will grow more vigorous during the winter for this treatment. If plants are required for a pond or fountain basin, this is a useful plant for the purpose; it will grow and flower all the summer if standing in twelve or fifteen inches of water, but under this treatment it will not flower in the winter. The Alba maculata variety has leaves spotted with pure white; this requires the same treatment as Caladiums, growing during the summer and resting during the winter. It is a desirable plant, although the flowers are not so large as the old species, and are not pure white.

Caladiums will now require abundance of water and also frequent syringing. Those grown under glass unless in a very moist house, are better shaded from bright sun; the colors are more brilliant, and some of the thin leaved, white varieties burn if exposed to full sun. If the late plants have not been shifted into full sized pots it must be done at once, or they will grow later than it is required, and occupy room required by the winter plants.

Gloxinias.—The early plants will now be in full beauty, and require abundance of water. The late plants will require shifting into roomy

pots if allowed to become much pot-bound, the foliage is small and the plants do not flower well. *Tydæas* and *Gesnerias* for winter flowering will require shaking out of the old soil and potting separate in small pots, or starting in pans, and potting separate later in the season, as most convenient.

Large Climbers will now require abundance of water at the roots, and well washing with the hose or syringe frequently over the foliage, to prevent the attacks of insects. We had the same plant of Thumbergia Harrisii in flower from the first week in November until May, which makes it a very desirable plant. Stephanotus floribunda will now be in full flower. This is a very useful plant, its principal flowering season being when white sweet-scented flowers are scarce. This plant makes its growth and flowers at the same time, so it requires abundance of water at this season. Lapageria rosea will be in full growth at this season; if the drainage is good it is impossible to overwater this plant especially when in full growth. Where failures have come under our observation it was usually from bad drainage and too little water.

Camellias will have finished growing and set their buds. Plants in pots are best in a shady position out of doors, unless a house is devoted to these plants alone. If any require potting or surfacing, it should be done at once. Do not disturb the roots for they are very tender and easily destroyed; give plenty of water and wash the foliage frequently, both for removing dust and to prevent red spider. The best flowers are obtained with the least trouble when the plants are planted out in the greenhouse. We commenced to cut Camellias the first week in November and have some fine buds to open the first week in May; this gives a more useful succession of flowers for the amateur than having all the flowers open at one time, and we have plenty of flowers for weeks after they are past in most places, the flowers are also much larger than when kept hotter. We measured some flowers from double white and Candidissima the last week in April; these flowers were over fourteen inches in circumference, and perfect in shape. If the soil and drainage is good, Camellias do not require fresh potting very frequently; it is better to give a good shift and then not disturb them again for several years if proper attention to watering is given.

Begonias for winter blooming must be potted into larger pots and well watered. These plants may be planted outside if desired, and lifted before danger of frost; they make a very stocky growth, and flower well under this treatment. Eranthemums and Justicias can be treated the same as Begonias.

Poinsettias and Euphorbias will be commencing to grow and will require shaking out from old soil and potting into smaller pots. These plants are frequently planted out but they do not take up well, and without great care lose many of their leaves, so that flowers are not so fine. The plants can be placed out of doors when rooting freely; they are best plunged in full sun, but not exposed to rough winds.

Agaves and Yuccas must be planted or plunged out of doors in full sun; they all make better growth, and the variegated sorts are better colored than when protected during summer. There is no class of plants better adapted to this climate, and there is a quaint grandeur about the plants possessed by few others. Many of the new species are finer than the old fashioned kinds. We hope Yucca Wipplei will prove hardy in this section; it is said to be the handsomest flowering variety of them all.

Azaleas will be now out of flower and growing freely. The pot-bound plants especially will require abundance of water, and all the plants thoroughly sprinkled overhead every bright afternoon; this is the best preventive for thrip and red spider; it will be more effective if it is possible to close the house for an hour or two afterwards. This cannot be done where flowering plants are in the same house, so that it is best, where possible, to keep Azaleas at this season with such plants as require closer treatment than is given to flowering greenhouse plants. The Azalea makes a better, stronger growth, and the flowers are

finer when grown in a brisk heat, but after the growth is finished plenty of air and light is beneficial, unless a second growth is desired. In this case the plants can be continued in heat until the autumn. It is quite a mistake to turn plants out of doors if there is room inside for them. One season's trial will convince any one on that point. These plants require but little shade at any time except when in flower, or if necessary to reduce the roots when potted, but this should not be done unless very large plants must be potted in same size pots again; this with amateurs is not often necessary.

We have been recently informed that Azaleas will not grow in California. This is very remarkable, as Heaths are said to grow well. We think it must be accounted for by their dry climate, breeding thrip and red spider, and the necessary precautions not being used to destroy it. If Heaths had failed we should have blamed the soil or water. It is a surprise and puzzle to us which we can not explain without examining the plants on the spot. Now is the time to give very large plants more pot room if they require it, but be careful the old ball is thoroughly moist before potting, and ram the soil as hard as possible round the ball of roots. If this is not done the water will run to the sides without wetting the roots and the plant probably die, or at any rate, become unhealthy.

We promised to give the names of a few new Azaleas. We will now give a few, and add others later in the season. We have flowered those named, and know they are desirable additions to this showy class of plants.

Alice—fine double, rose color.

Arthur Warocque—semi-double, cherry color.

Bernard Andreas alba, the best of the double white, and, although not quite so new as some of the others, is not yet in general cultivation; it lasts better than any other Azalea when cut, the flowers being of good substance.

Baron de Schickler—large double, rose color with dark veins, and dark red blotch.

Cocarde Orange—fine shape, orange scarlet, amaranth red blotch, very fine.

Countesse Eugene de Kerchove–pure white, streaked with lively cherry color, fine form.

Madam Mendel—Orange red, violet red blotch, very flowery.

Wm. George Merritt—fine semi-double flowers of brilliant violet rose.

President E de Ghellinck de Walle—very large, of intense rose, large lake colored blotch, with crimson rays.

Madamoiselle Marie Van Houtte.—This is a very extra large double white flower with an occasional dash of cherry color, but many of the flowers are pure white. It is a pity the Belgian raisers of seedling Azaleas give many of their pets such very long names, which are not easily abbreviated. The same fault may be found with the French Rose flowers, and the names appear to become longer each year.

Ixoras and other hard wooded stove plants will now be growing and flowering freely. These plants will require abundance of water and a sharp look out for insects, which will increase very fast at this season if not checked. If allowed to become dry or grown in a parched atmosphere these plants are subject to thrip which soon spoils the foliage. A slight shade is necessary during bright sun.

Crotons and Pandanus are best grown in full sun with plenty of moisture. The colors of foliage is much finer than when shaded. We were much amused at reading a recommendation in one of the English papers recently, by a writer on Pine apple cultivation, to shade the plants in May. It is very ridiculous to recommend such treatment in the English climate or any other, if the plants are good and ventilation properly attended to. We never used shading for Pines at any time unless for a few days in the height of summer, after shifting a batch of plants, and we have grown as fine fruit as any one, and the plants were at all times in fine condition. We have done nothing in Pine growing in this country, but the climate would suit these plants well if the heating power was good, but as a paying speculation we do not suppose it woudl answer in the face of West Indian importations of this fruit.

Marantas, Alocasias, and other fine foliage stove plants will require abundance of water and close shading from bright sun. If large specimens are required shift the plants as soon as pots are full of roots. We do not usually syringe Marantas over the foliage, for if the night temperature falls rather low with the foliage wet, it often causes unsightly spots.

Ferns and Selaginellas require abundance of water and shade from bright sun; see that scale does not become established at this season or the foliage is much injured. Lomarias, Woodwardias and varieties of Pteris are very subject to thrip if grown in a dry, hot place. This must be watched or the foliage is very soon spoiled. Sponging the few leaves on its first appearance is the best remedy, for it is difficult to give sufficient tobacco smoke to kill the insects without injury to the foliage when in full growth.

Orchids.—These plants will now require plenty of heat and moisture. Water the floors frequently, and syringe blocks two or three times in the day. If convenient to remove plants in flower to a cool shaded house, free from drying winds, the bloom will last much longer. The principal plants in flower will be Cattleya Mossiæ in variety, Cattelya crispa, Lælia purpurata, Cypripedium Stonei, Roezlii barbatum and Piercii, Lycaste Skinnerii and cruenta, Ærides in variety, and Dendrobium, Macarthæ and Dalhousieanum also Calceolaria. Those who are fortunate to grow Dendrobium Falconeri will now have it in flower. It blooms more free in this country than in England; it is rather scarce and expensive. At a recent sale in London of imported plants, fifty dollars in gold was paid for plants, and for a large mass of Dendrobium Wardianum more than five hundred dollars in gold was paid and for small plants in proportion. It must be remembered that they were dried up plants, after a long voyage from their native country. This proves that the taste for fine varieties of Orchids is rather on the increase than otherwise in Europe, and being sold by public competition would be supposed to be sold for their real value.

Scientific and Botanical.

Pelargoniums.

BY J. STAUFFER.

AFTER reading Mr. A. S. Fuller's article on page 113, April No. of THE HORTICULTURIST AND JOURNAL, an old botanist may be allowed to "ventilate" himself when his pet science is knocked into a cocked hat by the Floriculturists who have potted and repotted, not only pelargoniums but other flowers by raising multitudes of seedlings, till they have run one variety into the other, so as to put science and classification at defiance, and then giving a new name to every shade of difference. I find in Johnson's late edition of his Gardeners' Dictionary, about 250 species and varieties are named, among which hundreds of other names are not found. It is all right to improve, and as "variety is the spice of life," whether brought about by artificial selection, hybridizing or seedlings and special culture. That called Mrs. Pollock, with its exquisitely colored leaves, forming an ornament fit for a Lady or Knight of the Garter; be they variegated, golden and bronzed, or golden or silver edged, with their zonal centers, I, as a botanist, consider varieties of the sort, *Pelargonium Zonale* (and even in this the zone is not always present); but I go by types. At the Horticultural meeting held in the court house, Lancaster, Pa., Monday, April 5th, 1875, Mr. Daniel Smeych, No. 628 West King street, this city, had on exhibition the leaves and flowers of a series of five varieties, all successively raised by seedlings during a period of eighteen months. The plant he commenced with, is known to our florists as the "General Grant" (va. Zonale), leaves moderate, flowers large, of a deep and brilliant color. No. 2. A seedling of No. 1, flowers a shade darker red, leaves and flowers rather in size. No. 3. Seedling from No. 2, color of flower still good, size reduced, but the leaves much larger. No. 4. A seedling from No. 3, flowers changed to rose and orange tinge, size good, leaf reduced in size to that of No. 3, but larger than 1 and 2. No. 5. A

seedling from No. 4, here the flower assumes a bright orange or brick-red, and the leaves are reduced in size, and much smaller than in any of the other seedlings, and seemed to have reverted to a species introduced in England as early as A.D. 1800, the *P. lateritum*. Thus, it seems "General Grant" has gone back on the floriculture of friend Smeyche. How is this, brother Fuller? By-the-by, the *P. lateritum*—Johnson says was one-half inch in diameter—you say a "few years since a geranium flower an inch broad would have been considered rather remarkable, but now with such sorts as *Father Ignatius*, a full two inches in diameter, is not uncommon." I have seen such, but I am not a horticulturist. I have seen the smoke of a cigar change the color of flowers; ammonia does the same. Prof. Gabba says that a violet colored aster which had no smell had acquired a red color and a delightful fragrance under the influence of ammonia. The Japanese, by means of injection which they kept a secret, can color or whiten flowers and obtain wonderful variegation. The Chinese have a secret to dwarf trees. "The Garden of Acclimatization has at this moment an orange tree a hundred years old, and imported from China, no bigger than a rose tree; its fruit scarcely attains the size of a cherry." (*Journal de la societé centrale d' horticulture de France.*) I quote my authority.

I am tempted to venture on a topic on the relation between one form and another, or the science of Morphology, but I am admonished that readers generally prefer the practical matter of fact statements, and do not care to enter into what too often seems matters of speculation. I will therefore conclude that notwithstanding our florists produce such wonders, that some are inclined to take out a patent, but alas! the result of these wonders are truly called sports, so far as the human agency is concerned. And yet, there is a law of forces that governs all these changes, whether we understand them or not. Much can be said on judiciously selecting the fittest and promoting its fullest development; so far much has been done, and no one can set limits; nevertheless these fine varieties of the hot-house, under home culture, are inclined to be short-lived, and prone to go back when neglected; a change of soil or condition arises by the transfer. Thus, gardeners are often censured for that of which they are not guilty, as there are some however, who have sins enough to bear. It is still well to use the mantle of charity, and attribute many failings to a want of better knowledge, and not for want of a good will to do justice to their customers.

Lancaster, Pa.

The Introduction of New Plants.

BY A. S. FULLER.

THERE is a right as well as a wrong way of doing business, especially if one expects to gain the confidence of customers.

Of course there are persons who cannot understand why their own individual opinions about a matter of which they are undoubtedly ignorant is not just as good, and should carry as much weight with the masses as that of the highest authorities.

No one will deny a man to "his own opinion," even if it conflicts with that of others, who have had opportunities of knowing more as well as of becoming better qualified to judge of the subject under consideration; still it appears to me there should be some limit to the audacity of ignorance.

Probably in no one line of business are there more frequent exhibitions of this, than in horticulture. For instance, we will suppose Mr. B., who has never seen or cultivated a first rate variety of raspberries in his life, finds one growing wild in the woods or fence corners, or perhaps he raises one from seed, and if it happens to be the best known to him, he immediately proclaims it to be *the best* known to the rest of mankind, and enforces his opinion by certificates from others equally as ignorant of the facts in the case as himself.

Now when a man asserts that this or that variety is the best of the kind known, it is but reasonable that the public, of whom he may be asking favors, should inquire upon what grounds the assertion is made. Has the supposed-to-be superior sort been compared under

the same conditions with other standard and well known varieties? Have men who are known to be well informed, in regard to the class of fruits to which the new variety belongs, passed an opinion upon it? or, are the claims of superiority based upon no better foundation than the wish of some individual to make a little money out of the sale of plants?

These are questions which the purchasers of new fruits and other plants have a right to ask, and should ask before investing their money in things of which they know nothing personally.

I am not saying this to cast any reflection upon our well known florists, or nurserymen, because they are in the main authorities, and do not offer new plants without knowing their comparative value, but to warn the novice against that class of "unknowns," who are constantly announcing wonderful things, of more wonderful origin, of which men most likely to know, unfortunately know nothing.

It is an old adage that "good wine needs no bush," and any man who possesses a new fruit, flower or plant, superior to any thing of the kind known, need not be afraid of submitting it to our best authorities, and he that fails to do this, and obtain their opinion, requires watching, to say the least.

Cycles of Plant Growth.

BY WILLIAM BOWSER, RICE CO., KANSAS.

I WISH to call attention to a habit of plants that few observe, and none have thought of sufficient importance to call attention to. Having lived on the prairies of Illinois for twenty years, and given attention to the growth and bloom of all the plants and grasses that grow on them, I am convinced that very many of the plants, if not all of them, have a minimum and maximum year of production of flowers in a circle of years. They decrease yearly from their maximum, to their minimum, and then increase again to their maximum. The length of the circles of years of the different plants varies greatly, some making the round in four years, others in sixty to seventy. I have noticed the fine bloomers the most. I cannot give their botanical names, but I will try and describe a few of them, so that people of the prairies will know them.

The first plant that attracted my notice was an early bloomer. It sends up a smooth leafless stem, ten inches or more in height, producing flowers at the top, on long slender stems, and spreads them round, very much like the burners of a chandelier. It is the sweetest flower of the prairie, and makes its round in about fourteen years.

Another plant is a beautiful phlox, that grows in damp places. Makes its round in about eight years, and nearly dissappears at its minimum.

Another plant sends up a square stem about two feet or more in height; produces a fine head of small, trumpet like flowers that come out from the corners of the stalk. It makes its round in about eighteen years.

One lily makes its round in about sixteen years; and a small lily that blooms late in the fall takes about thirty-four years. One other plant, that was called the crimson plume, must take about sixty to seventy years to make its round. It grows on wet land, and sends up stalks four feet in height. Its head of flowers is a perfect plume, from one foot to eighteen eighteen inches in length; the flowers are a crimson scarlet, brilliant as the scarlet verbena.

This habit of plants may have much to do with our different varieties of grains running out, as we call it. They may only be running down to their maximum year. All men notice how abundant the bloom on the prairies is some years to what it is others; but they do not notice that the plants reach these high and low stages of bloom by a gradual yearly increase and decrease. The prairies are the only good place to learn those changes in plants, and if men living on the large open prairies, will give some attention to the habits of plants, take notes of what they see, and keep dates, they would soon begin to arrive at definite conclusions.

The rosinweed and others of the many varieties of the sunflower family are every other year plants; but this does not exempt them from making the great round. The hardwood

shrubs of the prairies are subject to the same habit. I will name two varieties: the red-root of Illinois, and the little acacia, of Kansas.—*Prairie Farmer.*

The Respiration and Growth of Plants.

BY PROF. ASA GRAY.

IN the *Gardeners' Chronicle*, of Nov. 28, we have at length a clear and good abstract of Corenwinder's paper on Respiration and Digestion in Plants. Respiration in plants as in animals, is an oxidation of the carbonaceous matters, and goes on continually, increasing or diminishing, however, with the activity or repose of the plant or animal. It is manifested and its amount measured, by the giving off of carbonic acid gas. Digestion or assimilation is the reverse process as respects the storing up of carbonaceous matters, through the decomposition of carbonic acid, and is evinced and measured by the evolution of oxygen gas. In growing buds and shoots, and forming foliage, the process of respiration is the most active. The plant—as we should put it—is then doing active work, and work means using up of material and force. Just as it costs the farmer a part of his crop to raise it and take it to market, so it costs the plant a part of its product to move and re-arrange its particles when it grows.

In the developed foliage, outspread in the light, the work of digestion or assimilation is the principal thing; and the result is the making of the material for growth. The work also uses up some already formed material, converting its carbon into carbonic acid, but this loss is unperceived and overbalanced by a far greater gain. For every one particle of vegetable matter which is now decomposed into carbonic acid and water are given out, probably twenty or thirty are recomposed in the assimilating process out of carbonic acid and water, and the oxygen of former given out; so that the net result as to air is the setting free of oxygen largely, as to the plant, the increase of vegetable matter.

Besides the carbonaceous elements, there is the nitrogenous matter and the phosphates and the like. These play the most important part in growth and in all vegetable action. They are accordingly most abundant in young and growing parts, or in parts preparing for future growth. A Lilac leaf dried in April was found to have nearly twenty-eight per cent. of nitrogenous matter to nearly sixty-eight of carbonaceous; a Maple leaf at the same season as much as forty-one per cent. of the former to fifty-three per cent. of the latter; but in October the nitrogenous matter of the Lilac leaf was reduced to less than nine per cent., of the Maple leaf to less than fifteen per cent. The phosphoric acid had decreased in a similar way. The precious materials, having served their purpose in the young and growing parts had been economized, and had been largely transferred to other new parts, and finally accumulated and condensed in fruits and seeds to provide for the nutrition of the next generation, or, in the grower's hands, to serve for the nutrition of another order of beings. The practical moral is, that young herbage and foliage are more nutritious and more palatable than when old, as we fully appreciate in the cases of a salad, beet-tops spinach, asparagus, etc.; but that fruits and grains offer similar nourishment in a much more condensed form.—*Ex.*

Boxwood.—The supply of boxwood (*Buxus sempervirens*), demanded for the best kinds of wood engravings, is gradually falling short. The largest blocks are the produce of the countries bordering on the Black Sea, but the yield has become very slight. In 1873, 2,897 tons, valued at £20,621, were exported from Poti. From 5,000 to 7,000 tons of the finest quality annually pass through Constantinople on the way from Southern Russia and Turkish ports to foreign markets. About 1,500 tons of an inferior wood is annually supplied from the neighborhood of Samsoon. The boxwood forests of Turkey are nearly exhausted. In Russia a considerable quantity of choice wood still exists.

The Flower Garden.

Tropical Effects.

BY E. S. CARMAN.

THE Canna, Caladium and Ricinus are, in the main, relied upon to produce the tropical effects now, perhaps, enjoying their zenith of popularity.

Who among us that have pondered over a new and altogether dazzling arrangement of our flower-beds for another summer, have not pictured happy imitations of that clustered luxuriance, stateliness and vigor of growth that waste themselves in the shadowy nooks and entanglements of equatorial lands—those mysterious resorts of strange and ferocious animals that there prowl about or idly fatten upon the wild abundance? And it is, we fancy, a desire, of which such picturing is a part, that has made for years past a prominent place in every garden for such specimens or groups as the Canna, etc., are so well adapted to form.

We have no word of disparagement to utter against the bold, incomparable beauty of their maturity; we have only to regret that almost before this has been reached, a cruel frosty night must needs come to cut them to pieces; and we find in the morning but the seared and unsightly remnants of our pains and care. Thus it happens that we are ready to conjure up combinations to produce something of this exuberance of foliage that shall develop their richness earlier in the season, and continue later in the fall, than the favorite plants to which we have referred.

Our own idea of a pleasing substitute—imperfectly executed in our own grounds last summer—is as follows: The plot was a circle sixteen feet in diameter, with a grass-sod margin. In the center was a clump of *Arundo donax*, a reed of the most surprising rapidity and strength of growth, that attained by the middle of September the height of 14 feet without manurial stimulant. In its firm, straight, jointed culms, with leaves that remind one of so many pennons from a mast, it is a curiosity in itself—little known in the North, though indigenous to certain Southern States—elegantly suited as the central figure to such a group as we propose. The variegated variety of this reed, though appropriate in masses of Amaranthus, Coleus and the like, is of slow growth and not to be recommended in this connection.

At a distance of three or four feet from the Arundo, on either side and parallel with the walk, was a clump of Erianthus ravennæ with its elastic, long, gracefully-waving leaves, and later, its bright, silvery, abundant plumes of inflorescence. Next, so as to form a square if connected, were four Hydrangea quercifolia—a noble shrub that only of late is attracting half of the appreciation it so fully deserves. Its large, deeply-lobed leaves and robust, careless habit place it in entire harmony with the effect desired. Magnolia glauca, preserved as a shrub, is also in keeping—and such plants as *Hydrangea paniculata alba* with its really immense and long-persistent trusses of flowers—the new *Poppy orientale* with its vivid, carmine and black flowers, will offer a cheerful relief, while they serve by their lower growth when placed nearer the perimeter of the circle, to preserve a general uniformity.

All of these are perfectly hardy and may be trusted to pass through our severest winters without the least protection. Our tropical bed when once completed is always completed, and exacts no other attention than that of maintaining it weedless, trim and tidy; and there are no bulbs and roots to be taken up, washed, dried and carefully packed away to be examined many times before another season of manuring, replanting, patient-waiting, watering and bother arrives.

Thus we submit, similar effects, as pleasing as those of the annual groups, may be created without the palpable objection that attaches to those plants. If among our house-plants we possess specimens of *Ficus elasticus*, *Abutilon Thomsonii* or *Vexillarium*, *Beaucarnea recurvata*, Yuccas or even Cacti, and we yet have room to spare in the circle, these may be introduced with pleasing results.

River Edge, Bergen Co., N. J.

About Dahlias.

BY A. S. FULLER.

OF late years the *Dahlia* has been gradually losing its former popularity, although not through the interference of any competing rival.

There is certainly no other flower which approaches it in symmetrical regularity of form, and few equalling it in brilliancy or variety of color. It lacks, however, one of the most essential properties of a flower, which would make it popular for any considerable time, namely, an agreeable fragrance, but this fault is a common one among some of our most showy and extensively cultivated plants.

It may be that the perfection attained in colors and form of this flower, has been one of the main causes of its declining popularity, and the chances of improving or even producing novelties being so few, that cultivators became discouraged, after making their many fruitless attempts in that direction. But whatever may have been the cause, the fact is quite apparent that the Dahlia is far less extensively cultivated than it was a few years ago.

It seems that we must be either going up or down, despondent or enthusiastic, there being no smooth and pleasant *non*-exciting paths even in our floricultural affairs, and the very *acme* of perfection would be no more satisfactory than the manipulation of the most crude materials.

The old large Dahlias are, it is true, rather coarse kind of flowers, but not half as "straight laced" as the hollyhock or much lauded *Zinnias*, for the plants are among the most sturdy as well as graceful in outline, and the blooms showy if not sweet. But of late years, a new class has been introduced under the name of *Pompone* or *Liliput Dahlias*, which are so unique in habit and style of flowers, that I have been inclined through them to renew my acquaintance with the genus. The flowers, like the large old sorts, are perfection in form and color, but so small in some of the varieties that they would almost answer for a buttonhole bouquet. To call one of these little Pompone Dahlias not more than an inch or inch and a half in diameter, and as round as though turned out in a lathe, every petal perfectly quilted, a "coarse flower," would be ridiculous; hence, that objection cannot be consistently urged against the Pompones.

The plants are also proportionally small, frequently blooming when not more than a foot or eighteen inches high, although they will reach two or three feet by autumn.

The culture is not necessarily different from the larger sorts, a good, deep rich soil being required to insure perfect and abundance of bloom.

When the frost has wilted the leaves in autumn, the tubers should be dug, and when well dried, stored in a warm dry place. Those who have no conservatory in which to keep such roots, will find that well dried sand or pulverized charcoal are excellent materials in which to keep Dahlia and similar tubers. The tubers may be packed carefully and closely in tight boxes or barrels, and then the dry sand or charcoal poured in to fill up all interstices between, then set them away in a dry cellar or room where there will be no danger of freezing.

The sand used for this purpose must be *very* dry; common sand from the open ground will not answer unless kiln dried or kept under cover until all moisture has been expelled.

Varieties.—To undertake to name a dozen or more of the very best of the Pompones would be a difficult task, because there are so many that are really superb. But I will name a few that are quite desirable.

Arndt—magenta color, with brown spots.

Ardens—bright scarlet.

Bride of Roses—rosy lilac.

Burning Coal—deep yellow, edged with scarlet.

Child of Faith—white, tinged with pink.

Little Kate—velvety purple.

Little Wonder—crimson, fine form.

Little Harlequin—crimson, tipped with white.

White Bedder—pure white.

Zarte Nelke—white, striped with crimson.

Raising Plants from Cuttings.

A CORRESPONDENT of the New England *Farmer*, in Kansas, thus answers an inquiry:

The plan that has proved most successful with me in our out-door management is as follows: Prepare the cuttings of a convenient length for handling (say about ten inches), of the last year's wood. Let the lower end be cut off smoothly, just below a bud; cut the top end about an inch above a bud. After a little practice, it will be no trouble to follow this rule, and one will always be able to distinguish the top and bottom ends of cuttings at sight. Grape cuttings on this plan should contain from two to four buds. Tie the cuttings in bundles about three inches in diameter, with willow twigs or small wire that will not rot in the dirt; make the butt end of the bundle even, and tie tightly. Heel in the cuttings in dry, mellow ground, with the butt ends of the bundles up, and the top ends down. cover the pile from four to six inches deep with mellow earth, pat down smoothly and administer a good drenching of water. Then cover the bed with manure, fresh from the stable, deep enough to prevent freezing during winter.

On the approach of warm weather, when the frost has all left the ground, and night frosts have nearly ceased, take off the manure but do not disturb the earth or cuttings. Let the cuttings remain well covered with dirt to keep them moist while the surface of the covering is gradually warmed by the sun from day to day. After most other spring work is done, examine your bed, and when the buds are well swollen, so that rather careful handling is necessary to prevent damage, then raise and set out the cuttings in fine, mellow soil. Set them deep enough, so that the top bud will be just at the surface of the ground, and so that a mulch of chaff, sawdust or cut straw will hide it. This treatment of cuttings should be begun early in the fall, and it will be perceived that we have used bottom heat all the time—first manure and second the sun. And generally it will be found that our cuttings have become well rooted, and all are likely to grow, if handled carefully. The setting should be done from a pail partly filled with tepid water.

Any person wishing to commence the treatment in spring, should begin it at the earliest moment that digging can be done. In all cases the cuttings should remain in the bed as late in the season as they can be handled without destroying the buds. It will always be found that the butt ends are more advanced than the top ends. Great care must be taken to preserve the roots, and the bud at the top end.

We never propagate the pear, apple, plum, peach or cherry from cuttings. Quinces, gooseberries, currants and many other plants are easily grown from cuttings. Apple trees are propagated very largely in the west by root grafting.

It is sometimes a great service to shade young plants from the noon-day sun during dry, hot weather. This can be done by sticking bushes or branches, filled with leaves, along the rows quite thickly. At first the green leaves afford thick shade. The sun and winds gradually destroy the leaves and they become mulching. No weeds should be permitted to grow among cuttings.

Wintering Echeverias.—Echeverias which have served for borders, beds, or floral inscriptions during summer, if potted to pass the winter, are liable to rot or spindle up. A method of preserving them, which occupies practically no room whatever, and which avoids the above mentioned inconvenience, is to shake out the earth from their roots when taken up in autumn, and suspend them heels up or anyhow, in small bunches, on strings stretched horizontally, like linen hung on a line to dry, beneath the roof of a cool greenhouse which just keeps out the frost.—*Gardners' Chronicle.*

VAN HULLE, of Ghent, Belgium, has received the buds of a water lily from Paraguay, that is said to excel the Victoria Regia in size and beauty.

Gardening.

Suggestive Notes.

Convenient Labels.—One-half the pleasure in growing our plants arises from the knowledge of their names and whence they come. In fact, we desire some little memorandum that will remind us, every time we look at them, what their title is, what their native country, from whom procured, and sometimes additional remarks of an explanatory character. An ordinary flat surface would have to be too large and unsightly, so we use a four-sided stake, one and three-quarters inches in diameter, planed smooth, and painted white. They should be about twelve or fifteen inches in length and pointed. When desired for use, rub lightly over the surface a thin coat of paint, and write thereon with a lead-pencil, which will last for two or three seasons distinctly.

The four-sided stake or label is preferable, as it is comparatively inconspicuous, gives a greater amount of surface for writing upon, and always looks neat. It is especially adapted for rose beds, groups of flowering shrubs, or masses of hardy border plants. True, it has not the merit of being imperishable; in fact, it should be replaced rather too frequently, but we like the appearance of wooden labels and we like to write upon them. The four-side stake for supporting roses and other plants may be utilized as labels by painting, say six inches of the top white, whilst the remainder looks best green. This top may then serve the same purpose as the above named label.

Early Wild Flowers.—Almost every one living in the country seems to be acquainted with our early blooming native plants, but how many undertake their cultivation? And yet, there is no mystery about the operation whatever; all that is necessary is to pay a little attention to the natural surroundings of their native haunts, so that when removed to their new homes they shall not droop away on account of the little necessaries that seem needful to insure health. Some prefer a partially shaded spot, others a moist location, and yet, again there are those that thrive best in dry and exposed situations. A little leaf-mold and sand, mixed with rotted sods from the best general soil for such plants, but peat where available is decidedly conducive to their health and rigor.

The following are all very pretty and are not difficult to cultivate: Wood Anemone, Rue Anemone, Silver-wort, Spring Beauty, Mountain Pink, Red-root, Dog-tooth violet, true violets of different kinds (especially the Bird's-foot violet), etc.

Low Growing Annuals.—These as too frequently seen, in the usual mixed border, are unable to do themselves justice, consequently to show to the best advantage each must have a separate bed to itself. Then if these individual beds are grouped together, so that the whole may form a tasteful design, the effect will be still greater, and each will show to better advantage by the contrast of color. For this purpose we have been especially pleased with the *Sanvitalia procumbens*, a neat little trailing plant, producing all summer long an abundance of golden yellow flowers, the double form of which is particularly pleasing. Since the advent of the *Double Portulaccas* they have been gradually increasing in favor, until they now stand at the head of this class of plants. The combination of brilliant colors makes a striking contrast. Of course no one would think of doing without the *Phlox Drummondi*, in its greatly improved condition. We have noticed beds filled with a single color, such as pure white or bright scarlet, than which nothing could be much finer. The fragrant annuals, such as *Mignonette*, *Sweet Alyssum*, etc., form useful rather than highly attractive beds, yet they may not be lightly passed over. They merit a spot in every garden and repay for their culture by the sweetest of odors. *Whitlavia grandiflora* is a lovely little annual, producing most of the summer a succession of little purple bells. When planted thickly in a bed devoted to itself it forms an attractive object.

Chrysanthemums.—A long name for one of the most useful of all our autumn flowers. To grow them successfully, not as they are usually seen with a perfect forest of stems from a single plant, requires a certain amount of care and attention. Indeed, it requires a skillful gardener to form a specimen for exhibition that shall be perfect in outline, with flowers evenly distributed and on every portion of the plant from the surface of the pot to the summit of the specimen. The only correct method is to commence with a strong cutting and as soon as it is rooted and potted off pinch out the top, when it will at once throw out three or four side shoots, which must be again pinched when two or three inches long. These in turn will contribute their quota of young branchlets to be pinched as soon as they are of sufficient length, and this should be persevered in until the middle of the summer, when it must be discontinued to allow the flower-buds to form. In the meantime the young plant must be frequently repotted, each time giving it a size larger pot, using a very rich fibrous compost, and watering once a week with diluted manure-water. During its young state it should be grown under glass and be freely watered as well as syringed once a day, but in early summer, when it has received its final potting, into, say an eight-inch pot, it may be removed to the open ground, and the pot sunken to the rim. Occasionally our summer suns prove too severe upon the foliage, so that a partially shaded situation seems to suit it best. Never neglect to supply them with water even at this late period, and if the surface of the pots should be mulched with a little manure, the plants will be the finer for it. Upon the approach of cold frosty nights, remove to the greenhouse or window and we will thus secure an ornament until Christmas, which will be difficult to surpass. Provided the pinching has been performed successfully, the plant will be as round as a ball, and the flowers will break from every portion of the extremities of the branches.

Forcing Strawberries.—A friend who has been very successful in performing the above operation, says, that after having tested several methods, he now prefers plunging pots filled with soil around the stool-plants, and allowing the runners to root therein. A great advantage is derived from pounding the soil quite hard. Towards the end of the season cut the young plants loose from the parent and resink the pots in tan, placing a frame of boards around them. As cold weather approaches, cover with hot-bed sash and protect with shutters or mats, banking up at the same time with fresh horse-stable manure to keep out excessive frost. The best bed for forcing strawberries is one filled with tan-bark for plunging with hot-water pipes beneath to give a brisk bottom heat. At first the top heat should be low, but as the plants show an inclination to grow this must be gradually increased, until a high moist temperature is attained. Red-spider, that terrible pest of the forcing-house, may be kept in subjection by constant syringing, and the plants are benefited by this frequent application of water, excepting when in blossom.

The Bell Flowers.—This is one of the largest genera of hardy plants to be found in our collections, and embraces some of the choicest species and varieties of perennials known to florists. Whilst some of these, such as the *Canterbury Bell*, appear to have been generally known among all classes of florists, there are others that have been passed by with little or no attention.

The *Hare Bell* (campanula rotundifolia) of Scotland, as well as of this country, is an exceedingly neat little species, quite hardy, and well deserving of cultivation. There is also a beautiful pure white flowered variety of this, which must be seen to be admired. The *Noble Hare Bell* (C. grandiflora of former botanists, now Platy-codon) is a valuable plant, growing about two feet high and producing large blue bells, late in summer. The *Carpathian Hare Bell* (C. carpatica) is dwarf in habit and makes a pretty ornament for rock-work. Flowers deep blue, but there is also a white flowering form equally pretty. Another interesting little alpine species is the *Campanula turbinata*, attaining only to the

height of three or four inches, and bearing numerous deep purple flowers, large for the size of the plant.

Some of the family form beautiful pot-plants, among which might be especially noticed the *Pyramidal Bell Flower*, a noble plant growing with good cultivation several feet high, and usually covered with blossoms from the surface of the pot to the summit of the plant. They are all easy to grow, and no garden can be called complete without some of the species, or at least a portion of the choicer garden varieties.

Premium Roses.—No plant is more sensitive to neglect, nor shows more plainly the result of careful culture than the rose. By the latter we do not mean an extravagant system of cultivation, but a frequent attention to their needs. Once a week the soap-suds from the wash, if applied to the rose-bed, will tell plainly in larger and richer tinted flowers. The liquid waste from the barn-yard, if not too strong, also assists greatly in the quality of the bloom; but all this is well known, and has been preached rather than practiced for very many years. The few cultivators who do follow this line of action "verily have their reward."

It is a difficult task for our plants to bloom freely and well and at the same time perfect a heavy crop of seed-pots. The last, as is well known, being the strongest drain upon a plant's constitution that it is called upon to perform. Therefore, cut off the dead and decaying flowers as soon as they have passed their prime. Better have fewer plants and then take good care of them.

Dust snuff over the green-fly when festooning the young twigs and sapping their very life away; use soot and air-slacked lime on the slugs, and preserve a deep green luxuriant foliage, as this is next in beauty to the flowers themselves.

Old-fashioned Vines.—Do not turn the deaf ear nor the cold shoulder to the old-time favorites, because the newer candidates are having their praises sung with a golden, yet fictitious value, that nearly takes our breath away. The *Morning-glories*, and *Cypress-vines*, and *Barclayanas* are just as handsome now as ever they were, and will give us just as much pleasure as before the "novelties" were thought of. We do not wish to deter our gardeners from testing new plants, but we do dislike to see the old-time favorites entirely discarded to make room for—we know not what. Let us see the old trellis and arbor still devoted to the above, so that we may recall the good old times when our minds were receiving their first lessons in a love for flowers.

Hedges and Hedge Rows.

MR. EDITOR: Under the above heading in your March number appears the following: White Willow and Osage are well understood to be of local importance, but of no general value. Of one thousand Osage hedges it would be difficult to find ten that do not look like brush heaps. It is a vile ferocious plant more dangerous to man than to animal. Such denunciation of the leading hedge plant of to-day is really distressing, and the statement must only show the local knowledge of the writer in regard to this plant. Does not the fact of the millions of Osage plants which are sold every year to planters in most every state, proclaim its general worthiness? The demand far from decreasing is on the increase, and nurserymen say the supply will not be large enough this year. If the above author will take a look at the farms in Illinois, Indiana, Ohio, Missouri and others, he will find thousands of beautiful living Osage hedges quite distinguishable from "brush heaps." But they need care as well as others, and when rightly treated they make a very ornamental hedge. As for turning animals its reputation is too well established to need argument. I will agree with your correspondent in its being dangerous to man, especially to those light-fingered men who visit their neighbors' corn fields, melon or pumpkin patches, etc.

F. S. P.

Weigela Hortensis Nivea.

THE *Gardener's Monthly* says of this new Weigela:—There has been no novelty of late years, that we deem likely to be of a more lasting popular character than this. The flowers are white—not the white of so many things, that are neither green, nor yellow, nor rose, or a pale edition of some one of them, but a real pure snowy white. The common Weigela rosea, and W. amabilis are well known, as are also the varieties between them, of which probably the best one is the var. Grœnwegenii, which has a very bright rosy tint, and the flowers in immense profusion on long wand-like branches. The history of the present one is unknown to us. It is probably a cross between W. amabilis and W. rosea, or it may possibly be a mere seedling from A. amabilis alone. It has more of its character than of the other one, including its tendency to bloom in August and September, as well as in June. It is not so straggling in habit, but is a well formed bush as is the W. rosea. It came to American nurseries under the name of W. hortensis nivea or snowy white Weigela of the gardens, which seems to indicate that its precise origin is unknown.

It has been found a capital plant for Winter forcing, where pure white flowers are desirable. It moves very well in the Fall, and blossoms as freely as if not transplanted, while a very moderate heat brings out the flowers. These are good points in a forcing plant.

Pole Beans without Poles.

J. B. ROOT, of Rockford, Ill., tells in his *Garden Manual* how he succeeded last year in raising Lima beans with poles. One-fifth of an acre was planted in hills, six seeds to each, eyes down, and when the runners were three feet high and straightened up, the tips were nipped off, thus inducing prompt development of all blossoms, and a set of side shoots which clung to each other and formed a sort of cone.

No more pinching in was practiced for fear of too late a growth. The result was the plants seemed content with a less stature, and a large proportion of the settings matured. The crop was fully one-half greater than ever before, and more than a half greater than that on poles the same season.

Hereafter he will confine himself to this method, with the difference that a lath, set deep, will be used for each hill. This will furnish something for the cone to cling to in a wind and the top of the lath will be a good point at which to nip the vine. It is added that if the crop is raised for ripe beans there should be several pickings, as some of the pods touch the ground and in a wet time the beans become stained. While others are advised, on the strength of this experience, to try the plan, it is "recommended that with this as with all new things, to 'hasten slowly,' and never risk an entire crop on an experiment."

Pinching Raspberries.—The past season I pinched off the top end of a part of my raspberry bushes when they were about three feet high, for the purpose of making them grow slowly, and to spare the trouble of setting poles to tie them to. Those canes pinched off threw out side branches, and the yield of fruit is about double this season on the bushes which were shortened in the last season, in comparison to those which were left to grow naturally. As the currant worm has destroyed nearly all our currant bushes, we can easily supply their place in our garden with other small fruits, such as strawberries, blackberries, raspberries and berberries, which as yet have few insect enemies. The best dressing I find for raspberry bushes is decayed chips or rotten wood from the forest, and ashes. In my berrying days of childhood I always found the largest raspberries and most thrifty bushes growing around rotten logs and decayed stumps in the pastures.—*Cor. Maine Farmer.*

THE mushroom crop in Angelsby was so heavy this season that for three days the London and Northwestern Railway Company were obliged to run special trains for the conveyance of the crop to the English market.

Fruit Culture.

Cherries.

An Address Delivered before the Michigan State Pomological Society.

BY HENRY S. CLUBB.

THE cherry, although long in coming into bearing, requires so little outlay for labor and is so sure a crop, in this climate, that no fruit-grower should think of planting a fruit farm without planting a good proportion of cherries, because while peaches, pears, plums and even apples sometimes fail, the common Morrello cherry, and probably some other varieties, when once in bearing, become as reliable as the commonest farm crop.

Value of the Cherry.

The season of the year when the cherry is ready for market greatly enhances its value as a market fruit, and indeed as a family fruit. It is the first tree of fruit that ripens in this climate, and for cooking it has positively no successful rival among the small fresh fruits of this season of the year.

But the value of the cherry as a fruit for domestic use, as an article of food, and consequently for market purposes, although great, is perhaps only exceeded by its great value medicinally.

In our climate, notwithstanding its salubrious character, persons are sometimes affected with throat difficulties. Perhaps these difficulties are chiefly inherited from our more eastern progenitors; but from whatever cause, the difficulties exist. Our clergymen and others engaged in public life are especially liable to diseases of the throat and consumption, although these diseases are not so common as at the East. The cherry is admitted to be one of the best antidotes, and, perhaps, the very best furnished by nature's great laboratory. The "Cherry Pectoral" of a famous eastern physician has an immense demand, and it is owing to the efficiency of this antidote, which we may have so abundantly if we only take the necessary pains to raise cherries. If cherries were grown so plentifully as to become the daily food of the people, there would be little occasion for expensive "Cherry Pectoral;" the throat diseases would probably be prevented, and the hereditary tendency in a great measure overcome.

The demand for cherries in the season is always greater than the supply; and, even when dried, the cherry commands several hundred per cent. more per pound than any other dried fruit, not excepting the best imported fruits. This shows that there is an intrinsic value attached to the cherry which no other fruit is known to possess. Both its agreeable alimentary and its valuable medicinal properties, we presume, produce this demand and places this high price on the cherry of commerce.

A recent invention for stoning cherries removes the only objection to this fruit as an article of great commercial value.

Varieties.

Of the twenty varieties of cherries mentioned in the appendix to the report of the Michigan State Pomological Society of 1871, only four or five have been proved profitable for market purposes in Western Michigan, so far as my observation and experience extend. While I would not recommend the extensive planting of varieties that have not been proved profitable, it is not amiss to have a few of the choice kinds for experiment. It is, however, with cherries as with strawberries and some other fruits, the strong acid varieties are the most prolific, the surest bearers, and, for market and domestic purposes, the most profitable.

The choice, sweet cherries, although very desirable as table fruit, are not, in my experience, a very sure crop, and being subject to the depredations of the birds are seldom profitable, while the acid varieties are regularly good bearers, and, being almost free from the attacks of the birds and boys, generally remain on the tree until gathered. When thoroughly ripe they are of very rich flavor.

The Early Purple Guigne appears to have become the favorite variety in the southern portion of Michigan's fruit region, and its early and regular bearing, and its good flavor, renders it an excellent and profitable variety. Of the sweet cherries I presume it is the best

that can be cultivated profitably in this region of the State, so far as ascertained.

The Early White Heart is a small sweet cherry, valuable for its earliness, but not desirable for extensive planting on account of its smallness.

Kirtland's Morrello is a short stocked variety, but I have failed to discover any superiority in it over the common Morrello. In fact, I do not find it as sure a bearer. One objection to it is the smallness of its leaves; a serious defect in a climate subject to early, scorching sun. The fruit forms before the leaves protect it, and the sun scorches the fruit, stunting its growth and causing a loss of a large portion of the crop.

One advantage of the Morrello cherry over all others, I think, is its adaptability to a northern aspect. It will flourish in almost perpetual shade, and can be planted on the north side of a hill, wall, house or barn with decided advantage.

The Report of the Department of Agriculture for 1867, describes several varieties of cherries not mentioned in the list of our Society just referred to. Of these the Kirtland, just mentioned, is one, and the Arch Duke another. The latter he describes as the best of the two Duke cherries. I presume the Late Duke, mentioned in the Society's list, may be the same variety, but Mr. Elliott claims that as incorrect, as it bears early in July, and cannot be called a late variety. The Arch Duke is described as large, round, heart shaped; compressed; dark, shining red; stem long and slender; flesh light red, slightly adhering to the pit; tender; sub-acid, rich and very good; tree vigorous, healthy; upright grower with long, broad, oval dark rich green foliage, slightly serrated, and the petioles a little bronzed. In sections where the more tender class of sweet cherries fails to succeed, this variety supplies a want, and offers superior claims to cultivation. The true variety is somewhat rare, as the common Late Duke is often sold for it. From this description I think the Arch Duke would be a very desirable variety for this region of country. Its dense foliage would aid very much in securing the perfection of the fruit in our usually dry June season. If any present have this variety, I would like to hear a report on it.

The Ohio Beauty is another variety spoken of by Mr. Elliott, not mentioned in the Society's list. It is described as large, round, obtuse, heart-shaped; sometimes nearly round; suture slight; color yellow, light ground, mostly overspread and somewhat marbled, with dark rich and pale red spots; stem rather long and slender, and set in a deep open basin; flesh yellowish white, tender, juicy, delicate, with a rich, fine, sprightly flavor; pit small, oval; season last of June. Tree healthy, hardy, vigorous, rather a short-jointed grower, forming a round open headed tree; comes very early into bearing, and produces abundantly. Originated by Mr. J. P. Kirtland, of Ohio, in 1843. Mr. Elliott states that, as far as he could learn, it has proved superior to the claim made for it by its originator. In no place that he could learn of has it ever shown any sign of disease, and it is reported as being grown successfully where the Black Tartarian and Elton have failed. I should judge from description that the Ohio Beauty would be a valuable acquisition to the varieties of the Michigan Lake Shore region, and recommend its trial. It is so large that it would, as a light-colored cherry, be greatly preferred to the White Heart; and its leaf, although not so large as desirable, is perhaps sufficiently large for all necessary protection.

Since preparing this essay I have had an opportunity of consulting Downing's "Fruits and Fruit Trees of America," and find my views confirmed in several particulars.

Mr. Downing insists on the position that the sour cherry is the surest crop:

"The hardiest cherries are the Kentish (or Early Richmond), the Dukes and the Morellos. These succeed well at the farthest limits, both North and South, in which the cherry can be raised, and when all other varieties fail, they may be depended on for regular crops."

The Cherry for Canning.

Mr. Downing says:

"When canned they retain their character

and are very delicious. The Dukes or Morellos are best for the purpose."

Soil and Climate.

The light sandy soil of our Lake Shore region appears to be peculiarly adapted to the cherry tree, and the cool climate of the Lake Shore is peculiarly a cherry atmosphere. I should prefer shade and protection from too much sun as a general thing for producing perfect cherries; as the slower in arriving at maturity, the larger and better is the fruit.

The planting, pruning and cultivation of the cherry differ but little from those of the peach, and no special directions are needed to a society composed of peach-growers. The cherry is so much at home in Michigan that nothing but ordinary care and culture are necessary, and no tree, perhaps, suffers so little from neglect as the cherry. It will grow on the roadside, on the lawn surrounded by grass, or anywhere where an ordinary maple tree will grow, and thrive as well.

The Cherry for Shade.

For ornamental purposes and for shade, the cherry is superior to almost any other fruit-bearing tree. Its beautiful and graceful form; its early sheet of white blossoms covering it as with a mantle of snow; its dense green foliage which soon follows the fall of the blossoms, and then its beautiful pendent fruit in red or jet clusters, nestled in delightful contrast with the emerald foliage, what can be more charming to the eye or more provocative of appetite? Had the forbidden fruit been the cherry, I think Eve herself should be forgiven for her transgression. What boy or girl can resist the temptation to take the cherry as it hangs in all its beauty and glory? The question of ownership is forgotten in the presence of a cherry tree laden with its rich and luscious ripe fruit. This very temptation is used as an argument against planting the cherry as a shade tree along our highways. Beauty so transcendent, as in the human form, should be its own protector. I would like to see cherry trees so common that there would be enough for boys and girls, birds and insects, and yet leave ample for profitable marketing.

It may be asking too much of fruit-growers to plant for the good of the public; but as shade trees of maple and other forest trees are generally quite as costly as cherry trees, and no more easily grown, there seems no serious objection to planting the cherry for shade along our streets and highways, securing for them all the protection that law and police regulations can secure. The sour varieties, although almost as beautiful, would be less liable to depredation than the sweet, and could be planted, I think, without fear of serious injury by boys. They might be alternated with maples with very pretty effect.

Mr. Downing's views on this subject are expressed as follows:

"The larger growing sorts of black cherry are the finest of all fruit trees for shade, and are, therefore, generally chosen by farmers, who are always desirous of combining the useful and the ornamental. Indeed, the cherry, from its symmetrical form, its rapid growth, its fine shade, and beautiful blossoms, is exceedingly well suited for a road-side tree in agricultural districts. We wish we could induce the planting of avenues of this and other fine-growing fruit trees in our country neighborhoods, as is the beautiful custom in Germany, affording ornament and a grateful shade and refreshment to the traveler at the same moment. Mr. Loudon, in his Arboretum, gives the following account of the cherry avenues in Germany, which we gladly lay before our readers:

"'On the Continent, and more especially in Germany and Switzerland, the cherry is much used as a road-side tree; particularly in the northern parts of Germany, where the apple and pear will not thrive. In some countries the road passes for many miles together through an avenue of cherry trees. In Moravia, the road from Brunn to Olmutz passes through such an avenue, extending upwards of sixty miles in length; and in the autumn of 1828, we traveled for several days through almost one continuous avenue of cherry trees from Strasburg by a circuitous route to Munich. These avenues, in Germany, are planted by the desire of the respective governments,

not only for shading the traveller, but in order that the poor pedestrian may obtain refreshment on his journey. All persons are allowed to partake of the cherries, on condition of not injuring the trees; but the main crop of cherries, when ripe, is gathered by the respective proprietors of the land on which it grows; and when these are anxious to preserve the fruit of any particular tree, it is, as it were, tabooed; that is, a wisp of straw is tied in a conspicuous part to one of the branches, as vines by the road-side as in France, when the grapes are ripe, are protected by sprinkling a plant here and there with a mixture of lime and water, which marks the leaves with conspicuous white blotches. Every one who has travelled on the Continent in fruit season must have observed the respect that is paid to these appropriating marks; and there is something highly gratifying in this, and in the humane feeling displayed by the princes of the different countries in causing the trees to be planted. It would indeed be lamentable if kind treatment did not produce a corresponding return.'"

The Cherry as Timber.

As a timber tree the cherry ranks high. It is in value and richness next to our famous black walnut, while its growth is much more rapid. The desk on which I write is made of Michigan cherry; the household furniture next best to black walnut and mahogany is made of Michigan cherry and thence transported to all parts of the world; the best printers' furniture made in New York, Boston and Cincinnati is manufactured from Michigan cherry, and distributed from thence wherever civilization has carried the printing press. Cherry, as grown wild in the woods of Michigan, is sought for by the manufacturers of school furniture in Chicago, Boston, and New York, as the best wood they can find for their purpose. It is easily worked; receives a good polish; has a delightful lively color, and, in contrast with maple and walnut, gives a pleasing variety of color to our decorative cabinet or carpentry work which, of late years, have introduced a new charm to dwellings, offices, stores, railroad cars, steamboats and private carriages. The wood is hard without being coarse or knotty, and its grain, though not prominent, is fine and beautiful.

The Gum.

There is nothing in connection with the cherry which is not of interest and value. Even the gum which exudes from its wounds is precious for medical purposes, and makes an excellent mucilage of daily value in every office, library, or sanctum.

A Universal Blessing.

In every position of life the cherry contributes in some way to the comfort, enjoyment and service of man; its wood is used to form the cradle of infancy; the chairs, tables, bedsteads, bureaus, desks, and cabinets of mature years, and when our time of final transport to another world arrives, it commonly forms the final casket of our mortal remains. The fruit is the first to tempt our youthful appetites, for who has not stolen cherries in his boyish days? It forms the most showy fruit in the market at any season of the year, only equalled by the precious strawberry; it makes unquestionably the best canned fruit in the market, as no fruit preserves in the can its flavor and its color like the cherry; as a dried fruit it has no equal in the whole realm of commerce; for the table and for pastry, the cherry cannot be excelled; for wine it is nearly equal to the grape itself, while its curative properties are universally conceded, and creates for it a universal demand. Whilst therefore it gives pleasure to youth, it comforts the aged and relieves the afflicted; whilst its rich color is the acknowledged standard of beauty on the lips of the most charming of womankind.

Need I say more for the cherry? Do not mistake me as claiming that the cherry is the panacea for every ill and the fountain of every blessing. I simply claim for it a prominent place among the fruits of our favored country, and thankful and proud should we be that we live in a land and enjoy a climate where this fruit can be grown so easily, so cheaply, and so abundantly.

Window Gardening.

Window Gardening.

Read before the Maryland Horticultural Society,

BY J. EDWARD FEAST.

The subject for discussion, this evening, is Window Gardening, which interests all lovers of flowers, principally those amateurs who have not the means to build greenhouses, conservatories, etc.

To encourage and foster the taste for Window gardening should be the aim of all florists, not only for its pecuniary benefits but for the influence it has on every household—as it tends to elevate the mind and make home attractive and pleasing both to young and old—as Williams, in his "Window Gardening," expresses it: "Flowers are a spring of sunshine, a constant pleasure; we would have flowers in every home for their sunny light—for their cheerful teachings—for their insensibly ennobling influence."

The three principal things required to grow plants successfully are light, air and moisture. Light is one of the most important agents in the growth of plants, it strengthens the color and matures the growth of both wood and flower—place the plants as near the glass as possible.

Windows having a southern aspect are the best.

Judicious watering is perhaps the most important feature in their management; the best and only general rules which can be adopted, are in winter, keep plants (not then growing) rather dry—in spring, increase the quantity with their activity and the sun's powers, keeping them in a medium state. In summer give water in plenty—and in autumn, decrease the supply with the approach of winter—in fact, never water a plant without it is dry, and then water thoroughly that the soil may get wet to the bottom of the pot—and empty all refuse water in the saucer.

Give *air* every fine day and avoid a draught.

To grow plants with credit in a window they should be screened from the dry air of the room, either by a curtain or an inside window, as the gas and dust is injurious to the delicate construction of the leaves.

Cleanliness is also essential by syringing, and sponging the leaves—and keeping the plants free from insects.

Keep the temperature of the room as uniform as possible, not lower than forty-five degrees at night and sixty and seventy-five during the day; in severe weather remove the plants from the window to secure from freezing, as it injures them even to be chilled, and takes some time to recover from the effect.

There are a great many designs now manufactured, for the window gardener to choose from, or to gratify his or her taste, viz.:

The window pots, boxes, jardiniers, plant stands, ferneries, hanging baskets, wardian cases, Etageres, mantle piece gardens and other designs of a great variety; but a plain box fitted to the window sill and filled with foliage and flowering plants, with English Ivy and other vines, trained over the window, surpasses them all in beauty and simplicity,

A glass case projecting beyond the window sashes on brackets, with a lean to roof, and filled with ferns and flowering plants are very popular in England; nearly every household has one of some shape or another, as I have been informed by a lady lately returned from London,

The best display of window flowers in Baltimore, are raised and attended to by a lady, a member of this society. They can be seen at any time on Cary street, near Franklin square, which are the admiration of all passers, as the flowers are so attractive no one can resist the temptation to stop and *admire.* With a little attention every day any person can have the same.

The most suitable plants for a window, facing the north, where they receive little or no sun are the following;

The common English Ivy, the easiest of all vines to cultivate for indoor use, and which adds more grace to the window than any plant yet used—it will grow both in the shade or sun.

Smilax, another graceful vine, answers best for winter, as it dies down in summer—all

kinds of temperate ferns. such as Nephrolepis exaltata—Lomaria gibba—Alsophylla australis—Pteris argyrea—Doryopteris pedata—Pteris cretica liniata—Phlebodium aureum—Adiantum cuneatum—A. affinne—A. microphyllum—Acrosticum alicorne—Lastrea cristata and Selaginella Wildenovi.

Dracæna terminalis and D. Braziliensis—always ornamental—Maranta zebrina—Sanseviera—Echeverias—Sago palm—(Cycas revoluta)—Ardisia, Solanums, and the following flowering plants: Camelias, Daphnes, Myrtles, Lily of the valley—and for the summer: Gloxinias, Achimenes, Alocasias and Caladiums—for hanging baskets nothing is prettier than Sedum Sieboldtii, Cordyline vivipara Musk plant, Tradescantia, Saxifragras, Lysimachia or Moneywort.

Plants for an eastern, southern, or western exposure—Oxalis, Chinese primroses, both double and single, all kinds of succulents, including the Cacti, Fuschias, Petunias, Pelargoniums, Carnations, Geraniums all kinds—Azaleas, Mignonette, Tropæolum, Pinks, Ferns, all the Ivies, Marantas, Dracæna, Begonias, both foliage and flowering—especially B. Saundersonii, B. Weltoniensis, B. Weltoniensis alba, B. hybrida multiflora, B. parviflora or Dregeii, and B. nitida or semperflorens alba. Amaryllis, all the varieties, Cyclamen persicum, Caladiums, Callas, or Richardia, cineraria, verbena, bouvardia, mahernia or Hermanneria odorata, hoya carnosa (the wax plant), lantana, especially lantana elegantissima or Selloviana a free flowering fall and winter variety, echeverias, liliums in variety, tritelejas, a pretty star shaped flowering bulb—ixias, sparaxis and all bulbs known as Dutch bulbs.

Vitis or cissus discolor, for summer is a splendid climber for the window—also passiflora trifasciata—both have beautiful foliage.

For hanging baskets, Convolvulus Mauritanicus, lobelia gracilis, ivy leaved geraniums, ivies, begonia rex and its species, caladiums, dracæna terminalis, mesembryanthemum sedums, senecio scandens or German ivy, pilogyne suavis, marantas, othonna crassifolia (a new basket plant) is quite an acquisition, begonia glau cophyllum scandens, also a new plant, will be in demand both for basket and vases.

Pansies massed together in boxes are pretty and effective.

Forget-me-not (myosotis palustris) cut and placed in a glass of water "shaded," and the water changed three times a week, will grow and blossom the same as if planted in the earth.

Ferneries filled with choice ferns, which are dwarf in their habits, overrun with Lycopodiums and Selaginellas, require very little attention after being filled. For outside window or balcony decoration have a box of rich sandy soil prepared and planted with either of the following vines: Cobea scandens, thunbergia, English ivy, tropeolums, Cissus discolor or maurandia and Mignonette, phloxd rummondii, sweet alyssum, nemophyllas, salvia splendens, interspersed with foliage plants, a box sown with the common portulacca, when exposed to the sun, and when in blossom, is dazzling to the eye.

Also in conjunction with house plants and ferneries, goes also the aquarium, or river garden.

By the culture of some of our most beautiful fresh water plants in glass aquariums many of the wild beauties of nature in some of her most pleasing and interesting forms may be wrought into attractive decorations for our ordinary rooms, with very little trouble and expense; but this is not the chief object of such aquaria. Their formation has been suggested by the discovery that the growth of aquatic plants will keep the water contained in such a vessel in a state of purity, sufficient for the healthful existence of all kinds of animal life, of which water is the natural element. It is well known by chemists that plants immersed in water when exposed to the action of light, emit a gas known as oxygen. The knowledge of this principle, is the basis which governs us on the construction of the aquarium, together with the assistance of water snails, who act as scavengers in purifying the water.

In preparing an aquarium, it is requisite, that the paint and cement should be perfectly

dry and entirely free from any unpleasant smell, which would be fatal to many of the animals, if not even to the plants also; use only clean washed sand. Some plants, however, such as water lilies, "Nymphæ odorata," etc. do better with a layer of fresh earth under the sand, and artificial rock work projecting above the water, and planted with ferns and forget-me-nots, have a good effect.

When the aquarium has been furnished with its plants and fish, also with snails to consume decaying vegetation, and at the same time to furnish a large number of eggs to nourish the fish in the tank—it becomes a beautiful ornament for a room and especially for a study. The vessel must however, above all things, be placed where it will receive a sufficiency of light, for without that life-giving influence, neither the aquarium nor even the natural lake itself, could carry on its interesting processes.

Light and air are essential for animal and plant life.

Plants for both Garden and House.

BY ANNE G. HALE.

SEVERAL species of garden flowers will bear transferring in the autumn to the parlor, and when providing plants for summer growth, out doors, it is well to make arrangements for rearing some that will lend their beauty in doors during the winter. The first that suggests itself is the Verbena, so extensively used as a bedding plant. Early in the spring assorted baskets of these favorite flowers, just ready to bloom, may be obtained at the florist's. We shall find them scarlet, purple, crimson, pink, white, lilac, in plain colors, striped or mottled, with eyes of the same, or of different hue; and nearly every garden and door yard will have its verbena-bed, square, oval or circular, flat or convex, keeping up a blaze of beauty until late in the fall. Now, these are very handsome, and worthy good care and attention; but they will not do for winter blossoming. They are generally raised from cuttings and exhaust their blooming powers the first season; the best winter verbenas are raised from seeds. Get the seeds of a florist, prepare a bed of sifted sandy loam, scatter the seeds upon it, sift enough of the same loam upon them to cover them well and spread over the bed an old shawl or a blanket, fastened at each corner by means of weights or heavy stones. Let it remain thus a few days—until the soil is cracked by the starting seeds. The bed should be in a sunny place; verbenas need plenty of light and heat. Sow these in May; June is not too late however, and after three weeks' growth remove all puny looking plants. Let the first buds open and decide then what varieties will be most desirable for winter flowering; these should be labelled, and, thereafter, all buds cut out as fast as they appear, and the plants pruned and cut to form shrubs. Plants not desired for winter may be allowed to grow and bloom as they please. Verbenas for winter blooming should be potted early in October; rich sandy loam with a little leaf mould is the soil for them, and kept in a cool room one month before taken to the parlor. Seedling verbenas grow stouter and stronger than those from cuttings, bloom more profusely, and are generally more healthy than they are when living within doors.

The Petunia that grows as easily as a weed, in any garden earth, is yet a very lovely plant for the parlor, and adds much to our window display through the winter. By careful culture it has been much improved during the past ten years; its original colors of dingy purple or white have been cleared and brightened, and now we get them from the darkest royal purple, and clear crimson, to pink, violet and white, self colored, or mottled, striped, veined or blotched; and its trumpet shaped flowers lend an air of elegance to any location.

The double varieties are raised from cuttings, are of rather delicate habit, but the natural form, single corolla, is the best for garden growth; and, though it may be multiplied indefinitely by cuttings, like the verbena, seedlings are more sure of producing abundance of bloom. The mode of planting, sum-

mer treatment, and preparation for winter life should be the same as for seedling verbenas, except, if any varieties seem determined to trail, keep them for basket plants; the same should have been said of verbenas; cultivated in that manner they will put forth more blossoms than if trained to a trellis.

The Salvia, especially *Salvia splendens*, after its autumn flowering should be transferred, to the parlor. Seedlings must be pinched often to make them grow shrubby and strong. Pot them in October, and accustom them gradually to the indoor atmosphere. They need rich loose soil and plenty of sunshine. Old plants after blooming must be cut back two or three joints on all branches; they will then throw out new shoots tipped with their elegant scarlet bracts.

Stocks.—Stock gilliflowers, as they are usually called, seldom blossom till the second year, but if potted in the autumn their lovely fragrant flowers will open by January, and continue in bloom till warm weather. The most desirable are the German stocks; a package of seeds will furnish a large supply of plants in deep crimson, pink, red, lilac, purple and white. Sow them like verbenas, and throw away all slender plants when two or three inches high. Give them rich soil; in poor soil, double stocks return to their original type, single and meagre. When taken to the house keep them two or three weeks in a cool room before carrying them to the parlor.

The Canna—Indian Shot, is its familiar name, so called because its shining black seeds have been used for shot by the EastIndians; is easily cultivated either for garden or indoor flowering. The seeds are hard, and do not germinate readily unless they are softened by pouring hot water upon them, and soaking them twenty-four hours previous to planting. The best way to plant cannas is to make a shallow trench in rich mellow soil, place the seeds in this about a foot apart, and then sift moist soil upon them to the depth of nearly two inches. They need plenty of sun. This plant, with its elegant large leaves, is a fine ornament for any grounds; and when its slender spikes are crowned with lily-like flowers of brilliant scarlet or orange, it is greatly admired. Cannas seldom bloom the first season, or not until very late, and usually they are stored through the winter in the cellar, and bedded out the following summer. But they evidently prefer society to solitude, for, if potted in the autumn and taken to the window garden, they send up their blossoms in January and February as gaily as any of their companions.

Primula Chinesis, the Chinese Primrose, with its handsome and curious leaves and lovely flowers is always desired as a parlor plant, and its seeds sown in the garden in May or June will bloom in the autumn. From a package of seeds may be obtained a number of plants yielding double blossoms; but the single ones are very beautiful and fragrant. The primula is frequently propagated by division of its root. Those plants, however, do not bloom so freely as seedlings. Sow the seeds in sandy loam, where they will be sheltered from the noonday sun. In September pot them in the soil of leaf mould, loam and sand, in equal proportions; take them into the house, but keep them cool till the middle of October, then they may have a place in the parlor. When primulas, especially the white varieties, have expanded their first blooms, they will retain their beauty longer, by denying them sunshine; they should have a place near the window that they may get a great deal of light, but no direct sun.

Mignonette grows finely indoors, and when planting it in the garden, reservation should be made for raising a few plants for the winter. From these plants pinch off every appearance of bloom as soon as noticed, also trim off the lower branches. In September pot these plants, give them light rich soil, and take them within doors. By December, they will throw out flower spikes, whose modest blossoms will fill the house with fragrance. The plants will continue to send forth new flowers as fast as those in bloom are removed. The pretty Sweet Alyssum should be managed in a similar way. It makes a fine creeping and trailing plant for baskets, and blossoms profusely.

Editor's Portfolio.

Scene in a Buddhist Garden.

The illustration contained in our frontispiece, introduces to us a curious phase of Indian garden scenery. In the foreground is a noble Talipot palm (corypha umbraculifera), the leaves of which are used by the Buddhist monks, prepared in small narrow strips as books in which to record their sacred writings. The leaves of this palm are used also as umbrellas and sunshades, and everywhere the custom is universal to use them for covering huts and making temporary tents. It is the noblest of the palm family, growing to the height of one hundred feet frequently. It only flowers once and then dies.

A correspondent of the *London Gardener*, in writing of it, says; "I saw a noble grove about three years ago all flowering at one time; they had a truly grand appearance, and would produce some thousands of seeds."

At the left hand, is the sacred "Bo tree" (Ficus religiosa). Every temple has one of these in its vicinity; part of the ancient tree at *Andro japoora*, which was originally planted there by Buddha and his followers, and said to be one of the oldest trees in the world. The temples are also always located near abundant water, and the vegetation is rich beyond description. With regard to the interest of the Buddhist religion in horticulture, Tennant's history of Ceylon says.:

One peculiarity in the Buddhist ceremonial served at all times to give a singular impulse to the progress of horticulture. Flowers and garlands are introduced in its religious rites. to the utmost excess. The atmosphere of the wehara and temple is rendered oppressive with the perfume of champac and jessamine, and the shrine of the deity, the pedestals of his image, and the steps leading to the temple are strewn thickly with blossoms of the najaha and the lotus. At an earlier period the profusion in which these beautiful emblems were employed in sacred decoration appears almost incredible; the Mohawason relates that the *Ruanwelli dagoba*, which was two hundred and seventy feet in height, was on one occasion festooned with garlands from pedestal to pinnacle, till it resembled one uniform bouquet; and at another time, it, and the lofty dagoba at Mehintala were buried under heaps of jessamine, from the ground to the summit.

The various kings in succession formed innumerable gardens for the floral requirements of the temple. The capitol was surrounded on all sides by flower gardens, and these were multiplied so extensively, that according to the rajaratnacari, one was to be found within a distance of four leagues in any part of Ceylon. Amongst the regulations of the temple built at Dambenia, in the thirteenth century, was, "every day an offering of 100,000 flowers, and each day a different flower."

Another advantage conferred by Buddhism on the country, was the planting of fruit trees and esculent vegetables, for the gratuitous use of travelers in all the frequented parts of the island.

On the rocks and monuments of India are edicts from the kings to their successors to merge the good work. One of their edicts, by the king of Magadha in the third century, B. C., commanded that "everywhere, wholesome vegetable roots and fruit trees shall be cultivated, and that on the road wells shall be dug and trees planted for the enjoyment of men and animals.

Wine Culture in Italy.

The growth of the vinicultural interest in Italy during the last few years has lately manifested itself by remarkable results. At the London Exposition in 1862, of one hundred and thirty kinds of Italian wine exhibited, forty-five received premiums. At the Vienna Exposition of 1873, of two hundred and thirty Italian wines exhibited, one hundred and one either received a premium or an honorable mention. Italy devotes over 6,000,000 acres to vine culture, producing, in 1873, over 870,000,000 gallons of wine. Of this amount about 250,000,000 gallons are credited to Naples and Sicily; 200,000,000 gallons to Emilia, Umbria and the Roman marshes; 200,000,000 to the older provinces. The average

price, as officially estimated by the Italian statistical authorities, was about nineteen cents per gallon; making the total value of the wine product about $165,000,000. The value of exports of Italian wine rose from $2,799,696 in 1871, to $4,692,672. France takes the largest proportion of this export; next in order, England, Switzerland, Austria and the United States. Egypt takes a large quantity in bottles, while considerable quantities of bottled wine are shipped to Tunis, Tripoli, Brazil and Holland.—*Ag. Depart. Report.*

Ancient Oaks.

The *Antiquary*, an English paper, describes an oak felled at Newport 28½ feet in circumference; the timber sold for $3,350, and the bark for $1,000. The Parliament oak in Chepstow Park is supposed to be 1,500 years old. Edward I held a parliament beneath its boughs. The "Duke's Walking Stick," at Welby Abbey, is an oak 112 feet high. The Greendale oak has a spread of 700 square yards, and a carriage-drive is made through its partly decayed trunk. The largest oak in the world is supposed to exist at Calthorpe, in Yorkshire; its trunk is 78 feet in circumference.

Herstine Raspberry.

The Herstine, in the same spot that the canes were killed a year ago, are now sound, with the exception of about twelve inches of the tips—a part where, possibly, the wood was not ripe. The Philadelphia, growing in the same place, between rows of pear trees, are unharmed by the effects of the cold weather, while those in the open field are nearly all dead. The Herstine is a much firmer and better quality berry than the Philadelphia, but whether it will prove hardy in a wide range of country has yet to be decided.—*P. T. Quinn.*

Remedy Against Moles.

The *Gardener's Monthly* says: Tow dipped in gas tar, buried in their runs, will drive moles away.

Gigantic Trees in Mexico.

One of the noticeable sights about Chepultepec, Mexico, is the grove of gigantic cypresses, said to be from 1,500 to 2,000 years old, with trunks scarred by shot and shell, fired in the many battles that have taken place in the immediate neighborhood. On top of the rock is the old Spanish castle, built of porphyry, marble and sandstone.

Profit of Fruit Growing in California.

A new fruit is attracting attention in California, the *Prune*, of which extraordinary profits are believed possible to realize. The Alden Fruit Preserving Company say in their pamphlet: "At fourteen feet apart, two hundred and twenty-two trees may be planted to the acre." The writer has seen trees of the Petite Prune d'Agen (an excellent variety) five years old from the bud, bear two hundred pounds to the tree. These prunes can be made into an article far superior to any imported prunes, at a cost not exceeding three cents per pound. This would give 15,200 pounds to the acre, of preserved prunes, which, at 20 cents per pound, would give $3,040 per acre, or about $14 per tree. Deduct from this the cost of curing, three cents per pound, or $456 for the product of one acre, less the cost of raising. Those who consider these estimates too high may reduce them one-half, and still it will leave a handsome return for the labor and capital invested.

The Eucalyptus in Mexico.

The *Eucalyptus globulus* has been known in Mexico for many years, and used as a preventive against chills and fever. The three-mile drive, from the city of Mexico to Chapultepec, is bordered by an old avenue of these trees; and wherever there is malaria, there is the Eucalyptus. In view of this fact, the citizens of New Orleans, we learn, have taken active interest in its introduction, and by order of the city council, the Mayor has advertised for sealed proposals for planting it on a large scale in and about the city.

Bananas in Southern California.

In the beginning of 1873, some bulbs of the Banana plant were brought to California and planted near the San Gabriel Mission, in the place of Rev. H. H. Messenger. They were imported from the Sandwich Islands. In

eighteen months from the time they were planted, the stalks blossomed, and three months later the fruit matured; fifteen bananas were borne upon the bunch, they were small, but well flavored. It seems from this, that the introduction and successful growth of this fruit gives no doubt of its permanent introduction to the already famous list of fruit adapted to California's wonderful climate. The Florida Banana, it is believed, would succeed there splendidly.

Nut-bearing Trees.

Greater attention is paid to this subject in California, than here in the East, for we hear frequent mention of successful experiments in culture of nut trees there than any other part of America. In Nevada, Cal., the proprietor of some public gardens obtained from France some of the finest specimens of chesnuts, and planted them on his place in 1870. Although it has been but four years since the trees were planted, yet they have already borne fruit; the trees are described the past year as being heavily loaded with fruit, and the nuts were the largest sized ever seen. The burrs contained from three to seven large sized nuts, some of them exceeding in size a large plum. The climate is admirably adapted to it; and of the almond, thousands of trees have already been planted.

The Fruit Market of San Francisco.

We observe, in the *California Horticulturist*, a report on the Fruit Markets of San Francisco, wherein occur statement of prices which quite amaze us. For instance—

Rhubarb sold at	25 to 37½	cents	per lb.
New potatoes,	6 to 8	"	"
Horse radish,	20	"	"
Field lettuce,	25	"	"
Sun-dried California raisins,	20	"	"
Green peas,	25	"	"

Pine apples, 50 cents to $1.25 each.

Surely this must be a *gardener's paradise*. But we infer these prices were quoted only for the beginning of the season, for we have known green peas sold there for six cents per pound and lettuce at 20 cents per dozen, and asparagus fall from 70 to 7 cents per bunch.

Viburnum Awafurki.

The *California Horticulturist* says that of all the brilliantly colored autumnal plants it has ever seen this is the finest. The leaves turn of a bright rose color.

Raisin-making in California.

In the foot hills of the Sierra Nevadas, near a little place called Rockland (6 miles east) resides Mr. H. B. Allen, who has for several years been engaged in a small way in making raisins. His vine is the Muscat of Alexandria; he sells his product to his neighbors, and readily gets 16⅔ cents per lb. wholesale. As the vines cost but five to six cents each, the land but three dollars per acre, and 1200 vines are usually planted to the acre, and each vine after four years old bears fifteen pounds, the closest estimator will find a total yield of $750 per acre. One would suppose that this "Big Bonanza" of a crop would attract "*millions*," but there are some drawbacks. Drying in the sun is a tedious operation, requires considerable attention and there is some damage from rain; but even these difficulties have been overcome by the irrepressible yankee invention of the *Alden fruit dryer* which dries them with great rapidity in the very best manner, and makes raisins of excellent quality. The best lands suitable for this business are those which have little or no irrigation.

In view of this information which was considered definite enough to warrant general planting, last season General Bidwell of Chico, California, planted in his estate 22,000 acres, 110,000 grape vines of the White Muscat. From some vines in his possession he made some raisins last fall, which were certainly as fine as any Malagas ever displayed there.

A California Prune Orchard.

According to statements in the California paper, the best prune orchard in the world is that of J. M. Patterson of San Jose, California. It contains about 2,000 trees set in rich alluvial soil, 12 feet apart, remarkably thrifty, and produce crops of very superior fruit. The *California Agriculturist* says.:

Last season 600 Gross Prune de Agen trees

produced some twenty-five tons of fruit worth, at wholesale, not less than four cents per pound, or $2,000. The fresh fruit brought, in twenty pound boxes, in New York, twenty-five cents per pound, and in San Francisco was worth, nicely packed in small boxes, from six to eight cents per pound. The same variety of prunes, pitted and dried by the Alden process, were sold here, wholesale, to an eastern firm for thirty cents per pound, and three pounds of green would make one of dried fruit.

There were produced in the same orchard over five tons of the Petit Prune de Agen, a small, very sweet prune, and one in demand for its excellence, These are prized as drying prunes, and will only lose one-half by evaporation. The difference in flavor between this prune and the large Gross Prune de Agen is considerable: the small prune is very sweet, while the large is quite tart for a prune. There were several tons of Damson plums and a quantity of Green Gages and other plums produced in this orchard, all of very fine quality. Every season the fruit is thinned out nearly one-half when from one-quarter to one-half grown, to keep the trees from overbearing. The advantage in this is, the trees are prevented from breaking, and what fruit is left grows to a very large and uniform size.

Mr. Patterson says that there is a difference of two years in the bearing age of plum trees between the budded and grafted trees, the grafted trees bearing two years sooner than the budded ones. This is his experience. Grafted trees four years in orchard, set when one year old, bore ten pounds each. When the trees are eight to ten years old they will bear one hundred pounds to the tree on an average. Ten acres in plums and prunes, on suitable soil, are all that any one family would want or need. It would bring a liberal income every year.

He is offered $2,000 a year for the fruit his orchard contains without further expense to himself than cultivating and caring for the trees. This, on about six acres of orchard, many of the trees of which are too young to bear much.

Weather-telling Plants.

Herr Hanneman, inspector of the Botanical Gardens at Proskau, Germany, has observed that several plants may be used as weather-prophets. Here are some of his observations: Convolvulus arvensis, the common English bineweed, and anagallis arvensis, the English pimpernel, spread their leaves at the approach of wet weather, while the different species of clover contract them. Stellaria media, the chickweed, at nine o'clock in the morning, if the weather is clear, straightens its flowers, spreads its leaves, and keeps awake until noon; if, however, there is rain in prospect, the plant droops, and its flowers do not open. If they open a little the coming rain will be of short duration. The same with pimpinella saxafraga. Calendula pluvialis, the marigold, opens between six and seven in the morning, and keeps generally awake until four in the afternoon. In such cases the weather will be steady; if, on the other hand, it has not opened by seven o'clock in the morning, you may that day look for rain. Sonchus arvensis and oleraceus, the hog-thistles, indicate fine weather for to morrow if the head of blossoms closes for the night; rain if it remains open. Again: rain is certain if hibiscis trionum, the bladder ketmia, does not open its blossoms; if carduus acaulis, the stemless thistle, closes; if clover, and most allied kinds, drops its leaves. Also, if lampsana communis, the nipple wort, does not close its blossoms for the night; if darby verna, the whitlow, grass lets its leaves hang drooping; if gallium verum swells and exhales strongly; also if the birches scent the air. Anemone ranunculoides, the crowfoot anemone, also tells the coming rain by closing its blossoms; while anemone nemorosa carries its flowers erect when the weather is fine, and drooping when overcast.

The Ink Plant.

Some of our botanists are said to be engaged in the acclimatization of a plant brought from New Grenada, which will enter into competition with our ink manufacturers. It is the *Coriaria thymifolia*, or ink plant. The juice which is extracted from it, and which is called "canchi," is at first of a reddish tint, but in

the space of a few hours assumes a hue of the deepest black, and can be used in its natural state without preparation. The merits of this canchi consists in its not affecting steel pens as the ordinary ink does, and besides, it will resist the action of time and the influence of chemical agencies.

New Publications.

"The Pinetum: being a synopsis of all the coniferous plants at present known, with descriptions, history and synonyms, and a comprehensive systematic index, by George Gordon, A.L.S. etc. etc. Second edition." London, Henry G. Bohn.

We have just received a copy of the above work, and in the short time allotted to its perusal, we find many things to praise as well as frequent errors to condemn. It is emphatically a horticultural book, and the scientific botanist who glances through its pages must feel disappointed at the mixed style of its descriptions. Every chance sport from the original type of the various species has been enumerated, and in some instances, with even more exactness than the parent plant itself, which is all very well so far as a guide to the general planter is concerned; but when the author undertakes to settle the disputes that are now current in relation to the American conifers, and upon this horticultural basis too, he commits a grave error.

His experience should certainly teach him, that the length of leaves, and size of cones, are by no means reliable tests of a species, for the reason that many species, such as the *Pinus ponderosa*, vary so widely in these characters, as to be of no account whatever in a scientific classification: when we look over Parlatori's monograph of the conifera, although it can hardly be considered free from inaccuracies, we still notice what a severe weeding out these superfluous species have received.

Guessing should not be tolerated in a book of reference like this, and yet we find a seedling of the American arbor vitæ (Thuja) placed under the heading of *Retinispora*, a sub-genus belonging to the Cypresses (Cupressus). This it strikes us is very careless and mischievous in its tendency. The variety, or rather sport, as it is merely an abnormal form of the species is described under the title of *R. Elwangeriana*, with the additional information that "it is said to be a hybrid (!) production raised in America, but in all probability a Japanese plant."

Another and similar heath-leaved variation from the original type of the American arbor vitæ, known in gardens as *Thuja occidentalis ericoides*, is classified under the heading of *Retinispora* after Carriere, and is called *R. Juniperoides*. Botany must soon become a mass of complicated names, if our authors on trees and plants seize upon every curious freak of nature to inaugurate new species, and even new genera, as is instanced in the last two plants.

As a rule, all conscientious botanists desire to curtail the list of species, where the characters are not well defined, and distinctly perceptible. In the "Pinetum," however, we notice so many plants described as species, that are really nothing more than mere variations of a species, and in some instances without sufficient claim to the honor of a well-marked variety, that we cannot pass the matter by without entering our protest *Thuja dumosa*, *Gordon*, as here described, should have been placed under the heading of *Biota*, as it is nothing more than the dwarf form of the Chinese arbor vitæ.

The form of the American arbor vitæ cultivated in our collections as the Siberian arbor vitæ, is accorded by Gordon the position of a species under the title of *Thuja Tartarica*, notwithstanding he says, "it was originally raised many years ago by Mr. Ware, a nurseryman at Coventry." Unfortunately for the specific claims of this plant, its progeny will return to the original type, i. e. the American arbor vitæ, thus incontrovertibly determining its true position.

We are pleased to observe he has untangled the matted skein of error that was so painfully apparent in a former edition of his work in describing the *Thuja gigantea* and *Libocedrus decurrens*. These two species have heretofore been the bone of contention among many cultivators, owing to the mistakes of collectors who

were not sufficiently acquainted with their true characters.

We again enter our protest against the name of *Wellingtonia gigantea* for the Mammoth tree of California—*Sequoia gigantea*. Mr. Gordon however, remarks by way of apology for his course, "the genus Wellingtonia is considered by most systematic botanists as untenable, it not being sufficiently distinct from Prof. Endlicher's genus Sequoia; nevertheless, as the name has now been universally adopted in garden literature, it had much better be allowed to stand, as its alteration would cause great inconvenience and much confusion in practical botany." Here we respectfully beg leave to differ. Practical botany is just what suffers most from such a course. It should be raised above all minor considerations pertaining to nationalities and preferences; and outside of England, no botanist uses the term Wellingtonia. Our author should not classify among his synonyms of this tree, the term "*Washingtonia gigantea* of the Americans," as American botanists have too true a sense of correct nomenclature, than to use so incorrect a title; and as for *Americanus giganteus*, it is a mere burlesque.

Biota pendula, Endlicher, is not a species but an interesting form of the *Biota orientalis*, as seedlings from it almost invariably return to the original species. *Biota mildensis*, Lawson, is nothing more than an abnormal form of the species having retained its primordial leaves. All the tales about its hybrid relation to the Red Cedar, etc. is nothing more than idle gossip.

Among the silver firs we believe Mr. Gordon has made entirely too many species, adopting as reliable characteristics, the variations that all species are liable to assume, and which should be disregarded in a strict classification. In this connection we have merely to allude to the *Picea Lowiana*, which is decidedly a form of *Abies grandis*.

Pinus Benthamiana of Hartweg is unquestionably a well marked form of the *Pinus ponderosa*, and cannot assume the position of a species, as it is not nearly so distinct as many of the other varieties, especially those bordering upon the region of Pike's Peak, where the trees so closely resemble *P. resinosa* of the east as to be almost unrecognizable.

Pinus Jeffreyi as well, will not stand the test, although its cones are quite distinct in many ways. There must be a limit to these multifarious forms and the sooner we curtail the list, the more readily will cultivators adopt the new order of things. *P. radiata*, especially, cannot assume the position of a species, and we wonder at Mr. Gordon's classification. It is nothing more than *P. insignis* of Douglas.

But with all the imperfections and errors contained therein, the Pinetum is a readable and useful work. To the collectors of conifers, as well as to the general planter, the list of curious and handsome sports enumerated and described, will be found of great interest, as many of these are really more valuable than the specimens themselves; and differ as we may with the author in his classification, still we must award him unqualified praise for his industry and perseverence in collecting such a mass of valuable information in this respect.

We also notice with pleasure an absence of sarcasm in the present edition, that was so conspicuously and painfully apparent in the original work

Many mistakes have been rectified, and several new and good species have been introduced, for all of which the author should receive our thanks The names of the most prominent growers of conifers are alluded to as having rendered assistance in the compilation of the work, men whose lives have been passed among this class of trees, and whose judgment should carry weight. We feel sorry that the already large size of the book should have been increased by the addition of the "Index of Popular Names," as this is composed mainly of translations, which any one could do for himself.

There is also too strong an odor of the *shop* in the lists of conifers presented by several nurserymen. A work of this kind should be something more than an advertising medium for the "trade." EVERGREEN.

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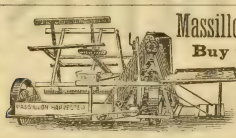
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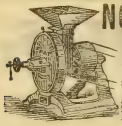
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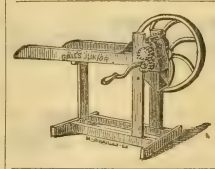
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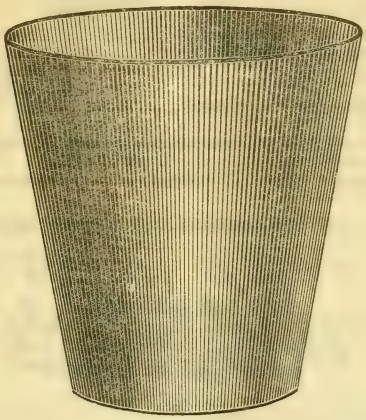


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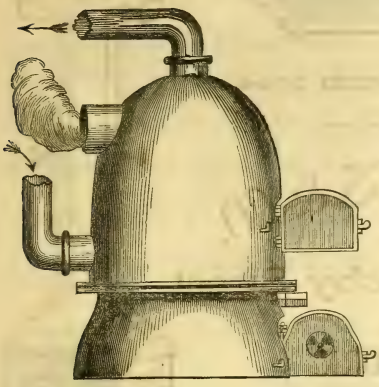


Fig. 1

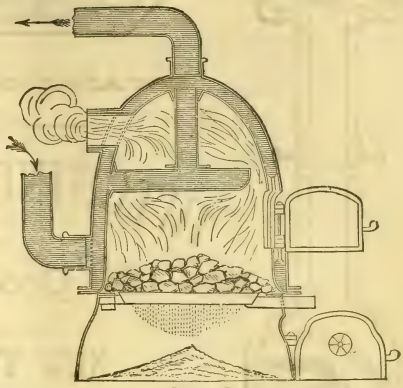


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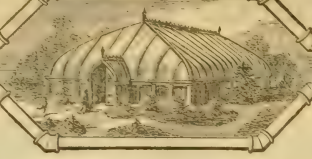
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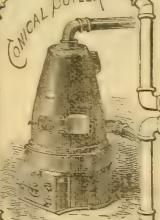


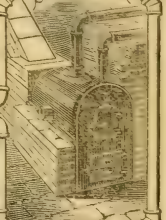
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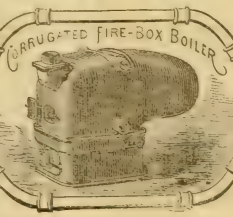
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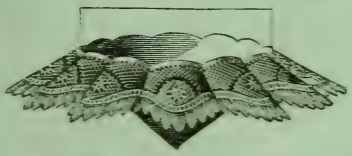
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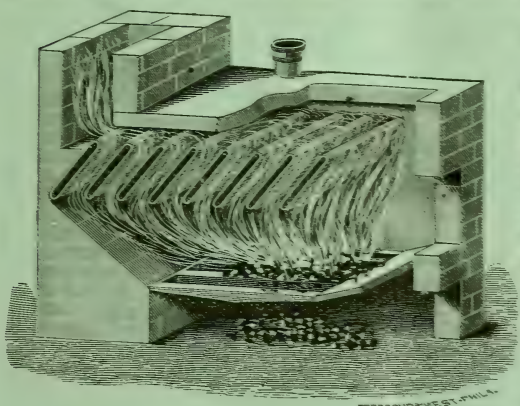
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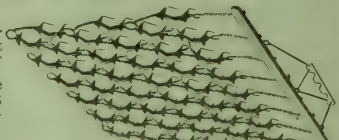
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THE HORTICULTURIST



A JOURNAL OF RURAL LIFE, LITERATURE, ART AND TASTE.



ESTABLISHED 1846.

July. 1875.

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EDITED BY

HENRY T. WILLIAMS,

Assisted by the following Special Contributors to Editorial Departments:

JOSIAH HOOPES. ANDREW S. FULLER, JAMES TAPLIN.

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Special Contributions.

A Squash in Harness.

Curiosities of Plant Life.

By Prof. W. S. Clark, from Report of Experiments to Mass. Agricultural College.

WE have attempted to study that most familiar plant, *the Squash*—and the results have far surpassed our most sanguine expectations.

The particular species selected for observation is named *Cucurbita maxima*, and the variety is called, by Gregory, the mammoth yellow Chili. It is said to be a native of the Levant, and to have been introduced into England in 1547. It is sometimes called the French pumpkin, and its fruit readily attains a weight of one hundred and fifty pounds. One has been grown in England, which weighed two hundred and forty-six pounds.

The following considerations suggested the idea of experimenting with the mammoth squash:

First. It is a well-known fact that beans, acorns and other seeds often lift comparatively heavy masses of earth in forcing their way up to the light in the process of germination.

Second. We have all heard how common mushrooms have displaced flagging-stones, many years since in Basingstoke, and more recently, in Worcester, England. In the latter case, only a few weeks ago, a gentleman noticing that a stone in the walk near his residence had been disturbed, went for the police, under the impression that burglars were preparing some plot against him. Upon turning up the stone, which weighed eighty pounds, the rogues were discovered in the shape of three giant mushrooms.

Third. Bricks and stones are often displaced by the growth of the roots of shade-trees in streets. Cellar and other walls are frequently injured in a similar way.

Fourth. There is a common belief that the growing roots of trees frequently rend asunder rocks on which they stand, by penetrating and expanding within their crevices.

Having never heard of any attempt to measure the expansive force of a growing plant, we determined to experiment in this direction.

We were surprised, last year, in testing the pressure exerted by the sap of various trees, to find that a black birch root, detached from the tree, was able to force water to the height of eighty-six feet. We were therefore somewhat prepared for an exhibition of considerable power, but the results of our trials have, nevertheless, been most astonishing.

At first, we thought of trying the expansive force of some small, hard, green fruit, such as a hickory nut or a pear, but the expansion was so slow, and the attachment of the fruit to the tree so fragile, that this idea was abandoned. The *squash*, growing on the ground, with great rapidity, and to an enormous size, seemed, on the whole, the best fruit for the experiment.

Accordingly, seeds having been obtained from Mr. J. J. H. Gregory, of Marblehead, they were planted on the first of July, in one of the propagating pits of the Durfee Plant-house, where the temperature and moisture could be easily controlled. A rich bed of compost from a spent hot-bed was prepared, which was four feet wide, fifty feet long, and about six inches in depth. Here, under the fostering care of Prof. Maynard, the seeds germinated, the vine grew vigorously, and the squash lifted in a most satisfactory manner.

Never before has the development of a squash been observed more critically, or by a greater number of people. Many thousands of men, women and children, from all classes of society, and of various nationalities, and from all quarters of the earth, visited it. Mr. D. P. Penhallow watched with it several days and nights, making hourly observations. Prof. H. W. Parker was moved to write a poem about it, and Prof. J. H. Seelye declared that he positively stood in awe of it.

Power of Roots.

The growth of a plant depends chiefly upon the amount of water which is exhaled by its leaves, and this necessarily depends upon the supply furnished by the roots. The folly of ploughing between rows of corn, or other plants, after their roots have spread widely through the soil, is self-evident. Prof. L. B. Arnold says he has known the maturing of a corn crop postponed ten days by plowing it at the last hoeing.

The penetrating power and tendency of roots is well illustrated in the case of an apple tree on the College farm, which forced its roots down through a mass of coarse gravel eight feet, to obtain a supply of water. The stones were about the size of hens' eggs, and so closely packed by the waters of the drift period which deposited them, that the cylindrical form of the roots was entirely destroyed. The growing tissues pressed themselves into every crevice, so as actually to surround and enclose the adjoining pebbles. A similar root of an elm was recently dug up in Westfield, Mass., and presented to the College museum by Mr. B. H. Averell. Prof. Stockbridge, last fall, washed out a root of common clover, one year old, growing in the alluvial soil near the Connecticut River, and found that it descended perpendicularly to the depth of eight feet. Mr. Mechi, of Tiptree hall, England, tells us that the reason that clover is usually so short lived, is the fact that the lower roots are either unable to penetrate the subsoil, or to find in it the requisite supplies of food. He also states that his neighbor, Mr. Dixon, of Riven Hall, dug a parsnip which measured thirteen feet six inches in length, but, unfortunately, was broken at that depth.

The roots of lucerne often penetrate to the depth of more than twenty feet, while the tap-roots of trees, continuing to grow for a long period, descend still further. A British officer in India reports that the roots of a leguminous tree—the *Prosopis spicigera*—is often dug for economical purposes, and that he has seen an excavation sixty-nine feet deep made for such a root without reaching its lower extremity. The roots of trees are well known to extend in a horizontal direction to surprising distances, and to exert a very deleterious influence on crops in their vicinity. The living roots of an elm, in Amherst, were found in abundance at a distance of seventy-five feet from the trunk, which was just the height of the tree. It has recently been stated in *The Field*, an English paper, that the roots of an elm were found to obstruct a tile-drain which

was four hundred and fifty feet from the tree.

But our squash-vine affords the most astonishing demonstration of all that has been said about root development. Growing under the most favorable circumstances, the roots attained a number and an aggregate length almost incredible. The primary root from the seed, after penetrating the earth about four inches, terminated abruptly, and threw out adventitious branches in all directions. In order to obtain an accurate knowledge of their development, the entire bed occupied by them was saturated with water, and after fifteen hours, numerous holes were bored through the plank bottom, and the earth thus washed away. After many hours of most patient labor, the entire system of roots was cleaned and spread out upon the floor of a large room, where they were carefully measured. The main branches extended from twelve to fifteen feet and their total length, including branches, was more than two thousand feet. At every node, or joint of the vine, was also produced a root. One of these nodal roots was washed out and found to be four feet long, and to have four hundred and eighty branches, averaging, with their branchlets, a length of thirty inches, making a total of more than twelve hundred feet. As there were seventy nodal roots, there must have been more than fifteen miles in length on the entire vine. There were certainly more than eighty thousand feet; and of these, fifty thousand feet must have been produced at the rate of one thousand feet or more per day.

Now, it has been said that corn may be heard to grow, in a still, warm night, and it has been proved that a root of corn will elongate one inch in fifteen minutes. But here are twelve thousand inches of increase in twenty-four hours. What lively times in the soil, where such vital force is at work! The wonder is that we do not hear the building of these roots as it goes on.

Our squash produced one leaf at each node, and all the leaves were arranged in two rows on opposite sides of the stem. The vital force in the tip of the vine was very active and vigorous, and displayed its power in the constant organization of new nodes. Thus, when we examined the terminal inch of the vine, we found no less than twenty-five young leaves, and in the axils of these twenty-five flowers, including five young squashes, twenty-five branching tendrils, and twenty-five buds for lateral branches. These were continually reproduced, so that when the vine was growing nine inches a day, as well as after it had developed one hundred nodes, the number was always about the same. All parts of the vine and its appendages increased with marked uniformity. Back of the first inch, which may be regarded as the terminal bud, about six nodes were developing at the same time. The growth was most rapid in the terminal portion of each node, and the leaves were not modified particularly in form during the period of development. The lengthening of the vine proceeded somewhat irregularly, varying from nothing to nine-sixteenths of an inch per hour. It was usually less between midnight and sunrise than at other hours.

The longest growth of the main vine in twenty-four hours, was observed August 15th and 16th, from 7 A. M. to 7 A. M., and amounted to nine inches. The laterals were removed when two or three feet in length. The total extent of the main vine was fifty-two feet, and the number of nodes was one hundred. At each node of the fully-developed vine were found a large leaf; a long, branching tendril, resembling the veins of a leaf, without the intervening cellular tissue; a staminate flower on a long stalk, or a pistillate flower on a short stalk; a lateral branch, and, on the under side of the vine, a long, branching root. The function of this root was evidently to supply water to the leaf above it, and its development, of course, depended chiefly upon the nutrient material elaborated by this leaf. These nodal roots not only furnished a much larger feeding-ground for the plant, but saved an immense amount of mechanical work in reducing the distances through which the crude and elaborated saps must be carried.

The largest leaves of the squash-vine were

nearly circular, and slightly lobed, with a diameter of two feet and a half, and a superficial area of about seven hundred square inches. The leaf-stalks were hollow, two feet in length, and curiously marked with vertical striæ, alternately light and dark in color. The light lines were found to contain bundles of fibro-vascular tissue, while the dark ones were simple cellular tissue, containing chlorophyl.

Mr. J. J. H. Gregory informs us, that if a shingle be set into the ground near the tip of a growing squash-vine, it will, in a day or two, be seen turning toward it; and that, if the shingle be removed to the opposite side, the direction of the vine will again be changed. He also states that he has observed a squash-vine, after running along on the ground ten or twelve feet, and then passing under the branches of a tree which were four feet above it, to stop and turn upward toward the branches. After growing in this direction till it could no longer sustain itself, the vine fell to the ground; but instead of proceeding horizontally, it again rose into the air, again to fail. A third effort was made before the plant was willing to give up and trail humbly on the earth.

The end of the vine under observation was constantly elevated to the sash-bars and glass above it, sometimes to the height of two feet, and as it increased in length, was pushed along against them. The extent and velocity of the terminal motion were doubtless greatest in August, when growth was most rapid.

The apparatus for testing its growing force consisted of a frame, or bed, of seven-inch boards, one foot long. These were arranged in a radial manner, like the spokes of the lower half of a wheel, their inner edges being turned toward the central axis. These pieces were held firmly in place by two end boards, twelve inches square, to the lower half of which they were secured by nails and iron rods. A hemi-ellipsoidal cavity, about five inches deep in the centre, and eight inches long, was cut from the inner edges of the seven boards, and in this the squash was carefully deposited, the stem and vine being carefully protected by blocks of wood from injury by compression. Over the squash was placed a semi-cylindrical harness, or basket of strap-iron, firmly riveted together. The meshes between the bands, which crossed each other at right angles, were about one inch and a half square. The harness was twelve inches long, and the same in width, so that when placed over the squash, it just filled the space between the end boards. Upon the top of the harness, and parallel with the axis of the cylinder and the squash, was fastened a bar of iron with a knife-edge to serve as the fulcrum of a lever to support the weights by which the expansive force was to be measured. At first, an iron bar, one inch square, was used for a lever, then a larger bar of steel, then a lever of chestnut plank, then one of seasoned white oak plank, and, finally, one of chestnut, five by six inches square, and nine feet long; but even this required to be strengthened by a plate of iron four inches wide by half an inch thick and five feet in length. The fulcrum for the lever was also renewed from time to time as the weight was increased.

The following table shows the weight of iron lifted by the squash in the course of its development:

Date.	Pounds.	Date.	Pounds.
Aug. 21	60	Sept. 14	1,300
22	69	15	1,400
23	91	27	1,700
24	162	30	2,015
25	225	Oct. 3.	2,115
26	277	12	2,500
27	356	18	3,120
31	500	24	4,120
Sept. 11	1,100	31	5,000
13	1,200		

The growing squash adapted itself to whatever space it could find as readily as if had been a mass of caoutchouc; nor did it ever show the slighest tendency to crack, except in the epidermis. This would often open in minute seams, from which a turbid, mucilaginous fluid exuded. In the morning, drops of this would frequently bedew the protuberances, like drops of perspiration. In the sunshine these dried up and fell off as minute globules, resembling gum arabic.

The lifting power was greatest after midnight, when the growth of the vine and the exhalation from the foliage was least.

The Greenhouse.

Greenhouse for July.

IN our last we anticipated an ungenial planting season, preventing early planting and satisfactory growth of plants in the open ground. This has been realized; during the end of May we had severe frost, in the third week, and harsh, drying winds, which prevented plants from making any progress, so that at the end of May we had still much planting out to do, for the ground was so dry that it was a question which made least labor, to water inside several times in the day, or to water over a much larger space once a day outside. We object to outside watering in very dry weather, on principle, for if commenced it must be continued until it rains, and the plants are chilled from the extra evaporations during the cold nights. It was only 47° at 4.30 A. M. on the first of June; in such a low night temperature tender plants can make no progress in the tops, and if the soil is chilled by heavy watering the roots will not start. It is surprising how quick the roots usually strike into the soil at this season, in spite of cold and drought. We had occasion to take up a large American Aloe four days after planting, and found young roots starting out in all directions; but plants turned out from small pots in very dry weather often become dust-dry before the roots can strike into the soil, and die unless watered. Continued stirring the soil with the hoe before plants are established, and a mulching with half-decayed manure is the best system to prevent evaporation and dispense with continued watering.

Camellias will have finished growing and set their buds, and can now be placed outside, in a shady place. We had still a few white flowers at the beginning of June; this gives a season of seven months for Camellia flowers. These late flowers come very useful for bouquets and funerals, when there is not heat enough kept up for flowering Eucharis all the year. See that those plants which are planted in the open border are not allowed to become dry; they require a large quantity of water if the drainage is good, and to be well washed over the foliage each afternoon.

Double Primulas will now require dividing and potting in small pots. If the plants are at all lagging it is a good plan to turn them out of the pots into a bed of good soil, in a shady frame, planting deep. Roots will then form on the old stem, close to the foliage. The same result may be obtained by surfacing the pots with fresh soil, but this is not so easy in the case of large old plants. Of course the tops may be cut off and treated like cuttings; but for the general class of cultivators it is least trouble to obtain rooted cuttings on the original plants. When dividing the plants it is best to cut away as much of the old stem below the young roots as possible. If this is not done it frequently decays, and extends to the heart of the plant. The best feeding roots are formed at the collar, so that it does not injure the future plant to cut away the old stump. Pot the plant deep enough for the soil, when complete, to be close to the foliage. If this is not done, when the plant begins to make large leaves, it requires support to prevent it falling to one side, and a risk of breaking off at the surface, as it will never be firm in the pot. Make the soil quite firm in the pots, and give water enough to well moisten the soil; but the plants must not be saturated until well filled with roots, or the soil is made sour, and they never root freely. The plants should be placed in a moist, shady frame, and kept rather close during the day, with abundance of air during the night—in fact, they are best entirely exposed at night, unless there is a risk of heavy rain. We have seen these plants destroyed by a heavy thunder shower when fresh potted. Care must be exercised in watering to keep the water out of the hearts of plants, the foliage being liable to decay and rot the plant at the surface of soil. Any good, rich soil, with the addition of rather more sand than is used for general potting, will grow these plants well, and a moderate sized pot is best; the soil is not so likely to become sour from careless watering. We

prefer to drain the pots for these plants; in fact, for many soft-wooded plants it is well to place a single piece of broken pot or a small oyster shell over the hole in the bottom; it prevents the roots from running out of the pot so readily, for it will be often found that the roots run straight through before there are many formed in the pot; this is especially the case if the plants are suffered to become very dry, the roots run out in search of moisture.

Azaleas will require abundance of water, and good washing of the foliage with hose or syringe. Be careful that fresh potted plants do not become dry in the old ball of roots. This is one of the most frequent causes of sudden death which the novice in growing hard-wooded plants finds it difficult to explain. If any plants require fresh pots do it at once. It is not wise to leave this work until late in the season; the pots do not become filled with roots before winter, the plants become unhealthy and do not flower well. If desirable to add newer and better varieties to the collection, it is well to look out early; the first customers have a better choice of plants. We usually make up our list during the flowering season, and forward it, to be filled as soon as the plants have ripened their wood.

Climbers, on roof and in pots, must be trained before they become entangled in a mass of confusion. Do not train in a stiff, formal shape, but allow as much natural form as possible. The Tacsonias and Passifloras never show their full beauty unless in a natural shape; for this reason the plants are best planted out and trained on the roof. The new Tacsonia insigna is said to be a very fine thing, and the colored plate is certainly fine. We have not flowered it yet, for it has only been distributed a few months, but we have it growing fine on the roof, and it will probably flower during the summer. The foliage is very distinct from any of the old varieties. Stephanotus floribunda will now be in full beauty, and will require abundance of water. See that mealy bug does not get established at this season, or the flowers will be spoiled. This can be trained in closer than many other creepers without spoiling the beauty of the plant. Winter bloomers, such as Thunbergia Harrisii, will be growing finely, and will require tying to prevent rambling too much. Cissus discolor, Dioscoreas, and others used for summer decoration, will require abundance of water.

Heaths and Epacris will require careful watering. If these plants become very dry or water-logged they are sure to die. Rain water is best for these plants, in fact for all plants; but hard water, or such as contains lime, is very injurious to the above-mentioned plants. The Epacris is a very useful plant for winter cut flowers, and it does these plants no harm to cut the flowering shoots, for they require cutting back after flowering, if good, bushy plants are required; but, excepting the Willmoreana and Hymalis sections of Heaths, very few will stand much cutting, the plants being of very slow growth.

Myrtles, Diosmas, and other greenhouse plants employed for cutting to mix with cut flowers in winter, must be trimmed into shape if required, and induced to make a free growth for next season. These plants, if grown in pots, require lots of water during summer; but, if convenient, a plant or two planted in some corner of the greenhouse gives more wood than a number cramped in pots. The European Myrtle is not so much grown as it should be in this country for furnishing green for bouquets, etc.

Cactus, in variety, will now require more water than at any other season. It must be remembered that although in their native districts these plants are exposed to long droughts and full sun, the plants are then growing in soil in which the roots can travel very long distances in search of moisture, and under very different conditions to those grown in pots. The night-flowering species will now produce their fine, large flowers, which are very handsome, and only to be seen in full beauty after sunset. Where convenient to plant these sorts out they flower much better, with very little attention.

Hanging baskets will frequently require water if exposed to full sun and wind, which

is the usual position during the summer, when plants are liable to be forgotten during the absence of the owner. Baskets filled with Echeverias, Othonna crassifolia, Sempervivums, Epiphyllums and drooping Cereus are capital plants for the purpose. A few days' neglect will do no permanent injury to the plants. If the dead flowers are picked off regular the Othonna will flower all the year, but is best filled with young plants in spring and autumn.

Palms.—Specimen plants of these, employed for effect on the lawn, either planted out or in pots and tubs, must have abundance of water. If allowed to become dry the foliage is a bad color, and the ends of leaves shrivel and die. This is more frequently the cause of these plants being unsatisfactory outside than any effect of the change, for many species are natives of a moderate, average temperature. Specimens in the greenhouse will now be growing very fast, and will require abundance of water. In fact, there is no class of plants which requires so much water as palms. It must be remembered that some of the species, which are natives of thick, shady forests, will not stand bright sun. These kinds are useless for outside decoration, and must be shaded indoors. Geonoma pumila is a well known species of this class. The Kentias will be a useful class for both cool house decoration and also for the pleasure ground in summer, but, unfortunately for the grower of small means, the plants are high priced from the supply being limited; but Seaforthia elegans and Ptychosperma Alexandræ are nearly as handsome in the same style of growth, are very easily grown, and of a moderate price. The old Latania Borbonica is another capital palm for outside and cool house decoration. Small plants of this can be obtained as cheap as Geraniums. This is a good example of the fan palm class, and will bear much hard usage without permanent injury. Any specimens requiring larger pots should be shifted at once, but if plenty of water is given, these plants will keep in good condition for a long time in a moderate-sized pot or tub, and if allowed full development for the roots the plants soon become too large for a moderate sized house.

Marantas will now be growing very fast, and require plenty of water and also a moist, shady atmosphere, or the beautiful colors of the leaves will not be developed, and the plants will be troubled with red spider, and the ends of the leaves will burn. Any specimen requiring more room must be potted at once, and those in small pots surfaced with light, rich soil. Wash the leaves frequently, to keep them free from dust..

Orchids will require plenty of water at this season, with a very moist atmosphere. On very hot, dry days those plants on blocks must be syringed several times during the day, for most of the species will now be in full growth. Such plants as Dendrobium nobile, when growth is complete, must have plenty of light; in fact, we have placed these plants out of doors in full sun for a month at this season, with the best result; but care must be exercised to prevent heavy storms from saturating the pots. We usually remove these plants to a light, airy house for two or three months. Large plants of Cœlogyne cristata will require abundance of water; but see that it does not lodge in young shoots, or they will rot off. Any late blooming Cattleyas in pots, if the roots are not in good condition must be shaken out and repotted in fresh soil, or the growth will be poor. Stanhopias will be in flower. Care must be used when the flower stems are showing that the plants do not become too wet, or the spikes often shrivel up without opening the flowers. These plants generally attract much attention from the large size of the flowers, and the flowers coming down through the bottom of the basket; for this reason these plants must be grown in baskets or on blocks. Many species are of such a powerful perfume that it is not pleasant in a small house or room, but the plant may be suspended from the branches of a tree in the open air while in flower; the flowers will last longer and the heavy perfume, being more diffused, will not be unpleasant. Ruckeri and Amœna are two of the best species; the

scent is not so powerful as many others, they are very free blooming, and the flowers last much longer than most kinds. We have some of the former in flower several times during the year. The Holy Spirit plant (Peristeria elata) will now be in flower. This plant usually creates more excitement than any other Orchid, and is usually the first plant inquired for by visitors to an Orchid house. At this season the plants require abundance of water, for the growth commences and progresses with the flower spikes. We have several plants with very fine flower stems, for this plant usually grows and flowers much stronger under cultivation than in its native woods, a fact which may be mentioned in connection with many other plants.

Plumbago Rosea.

MR. H. CHILMAN, Somerly, writing to the *Florist and Pomologist* on this most useful plant, very truly remarks that it is one of the finest winter-blooming stove plants in cultivation, and if a young plant is started into growth in May, in a temperature of from 60° to 65° at night, and 70° to 75° by day, a nice plant may be grown in one season. In potting let plenty of drainage be placed in the pot, and over this put some rough fibry peat, to prevent the drainage getting choked. For soil break up some fibry peat in pieces about the size of hazel-nuts; to this add about one-fourth its bulk of good loam, and sufficient silver-sand to keep the whole porous. Use a pot two sizes larger than the one the plant is taken from; pot moderately firm, and be rather sparing with water at the root until the plant shows signs of growth, but syringe well night and morning. When the young shoots have grown to four or five joints in in length, stop them at either the fourth or fifth joint, according to their strength. Use the syringe freely and do not let the plant suffer for want of water at the root. As soon as the second growth is starting from the eyes to which they were pinched back, give another shift, using soil as before advised, and treat the plant, as to temperature and syringing, in every respect as before. As soon as the roots have well got into the new soil, use a little weak manure-water once a week until the flower-spikes begin to form; when the flowers begin to open remove the plant to a rather drier atmosphere, and by gradually reducing the temperature the plant will become sufficiently hardened to stand in a warm conservatory for some time whilst in bloom. After blooming is over, cut off the old flower-spikes, and start the plant as before. The thrips are a great pest to this plant, and must be kept down by fumigating or washing the foliage by hand.

Spur-pruning Woody Greenhouse Plants.

A VERY successful grower of choice greenhouse plants says the first time he discovered the benefit of close pruning was by the supposed loss of a fine *Azalea phonicea*, several feet in height, which was damaged by frost during a flower show. The frost killed back all the last season's wood, and the day after he cut it down as far as the frost had reached. The plant was cut back to within about three inches of the main stem all the way up, and nearly eighteen inches of the top were also taken off dead.

The plant was a long time recovering, but when it broke out, nearly half the shoots had to be cut away to make room for others. The plant grew vigorously, set well for bloom, and the next season was as fine a specimen as was ever seen. This induced him to cut back all woody plants that are gawky and thin of branches, and from ugly uncouth plants, with the stem to be seen on three-fourths of the plant they become stocky arms well furnished with branches.

Since these events he has used the knife freely with azaleas and all plants of similar habits of growth, cutting them in very much, but keeping an eye to the proper shape of the plant, and has always found great benefit from this manner of treatment. The period for pruning in close is immediately after the bloom has declined, and before any growth is made. The *Camellia Japonica* should also be pruned after the bloom so far as to cut in any lanky,

ill-grown branches, that the new growth may be handsome.

When plants are cut back in this manner, they are frequently inclined to break in many more places than it is desirable to have branches. All that are not wanted may therefore be rubbed off and no more allowed to grow than are required to make a close, handsomely formed plant.

Fern Culture.

A CORRESPONDENT of the *London Journal of Horticulture*, being dissatisfied with the results obtained by his gardener in cultivating ferns in the usual way, devised a plan of his own, which he describes as follows: "The hole in the bottom of the pot being broken out very much larger than the maker leaves it, I put in three or four pieces of broken pot, then some rich soil and old manure, just what should be used for cucumbers, no peat, no sand; then I put in the fern and very gently fill the pot with good garden soil, intermixed with a few small bits of brick as large as peas. The pot is placed on soil or ashes, perhaps partially plunged, perhaps surrounded with lycopodium. In any case the soil is always kept quite wet, in fact muddy, and the ferns grow as I never saw ferns grow before. The whole secret is in keeping them wet and warm, partially plunged and thoroughly drained. You may take a pot-bound fern, pull roughly the drainage from the roots, break off the fibres anyhow, repot in wet soil instead of dry, and it will grow and flourish as it never would with ordinary treatment. I planted, less than two years ago, a little bit of Adiantum Farleyense root, without a frond on it, and it now measures ten feet six inches round."

Greenhouse Climbers.

A CORRESPONDENT of *The Gardener's Record* speaks of some very successful greenhouse climbers. *Mandevilla suaveolens* is now in perfection; it is trained on the roof of a cool greenhouse, and has at the present time several dozen trusses of its beautiful pure white flowers, many having from six to nine flowers on each truss. Rambling amongst this is Tacsonia Van Volxemii; this is also flowering very freely; its beautiful bright rose colored flowers suspending beneath the Mandevilla form one of the most lovely features imaginable. The Mandevilla, I must say, is in perfect health, not, as often seen, infested with thrip and red spider, its greatest pest. Mr. Rorke attributes this to the heavy syringing it frequently gets, which is one of the greatest preventives against these most troublesome insects. In another (cool) house a fine contrast was formed with Lapageria rosea, and Clematis Jackmanni. The bright colored flowers of the former, and the deep purple of the latter, presented a most lovely picture; these are also growing on the roof, are allowed to ramble amongst each other, and are growing most luxuriantly. In a stove close by the above is also Passiflora princeps, festooned along the house from end to end with dozens of its beautiful large red racemes of flowers, many having eighteen in a bunch; this also forms a striking contrast with the Allamanda Hendersoni, which is in flower also. The above climbers, I think, are worthy the notice of those wanting something effective and useful, and, not being expensive, ought to be more generally grown, for they each continue to flower the greater portion of the autumn.

A New Iris.—*The Florist and Pomologist* has excellent colored illustrations of a new Iris (I. Kampferi, E. G. Henderson). In the description accompanying the Iris it is stated that as a garden flower few plants can vie with this novel form of Iris which, in the size of its blossoms and their deep purple color, may be compared (as was actually the case) with the well-known Clematis Jackmanni; but, instead of being wholly purple, each of the segments is lighted up toward the base with a blood flame of rich golden yellow. This combination of deep purple and gold gives a remarkably rich appearance to the flowers. The plant is rather tall and spare, and the usual sword-shaped leaves somewhat narrow; but these peculiarities are abundantly compensated by the size and individual beauty of the blossoms.

Garden Gossip.

Spring Flowers.

I WELL remember a visit I paid a few years since, in England, to what was termed "A Spring Flower Garden," and the effect of this grouping together of our earliest blooming plants, seemed especially deserving of imitation.

After passing through a long, bleak winter, the very sight of a modest little snowdrop appears to infuse new life into the florist's veins, but to view, as I did, a large collection of just such "harbingers of Spring," of various forms and colors, and arranged in such a natural manner, was as novel as it was beautiful.

There is no lack of hardy perennials blooming early in the season, although they require different treatment, and different soils. Some that prefer a peaty soil, would languish in the sandy locality just suited to others; and the rocky, exposed spots, where a portion would be entirely at home, might be certain death to another class.

To make such a collection complete in all its details, a spot of ground should be selected with a southern exposure, and protected from the cold winds. One corner might be devoted to a little mound of rocks, disposed in a natural manner, and set with the dwarf-growing alpines, and some of the smaller bulbs. If water should be introduced, and caused to trickle down over one side of the above, as well as to form a little running stream through a portion of the beds, it would be a decided advantage to the moisture-loving species.

The larger portion of the alpines prefer a gritty, or gravelly soil, and some of them succeed best in sand and peat, so that the characters of each should be carefully studied, and the soil properly prepared for each, else it will be useless to plant them. Chief among this class of dwarf plants we may mention the *gentians*, very beautiful, and very difficult to grow properly; *G. acaulis* is probably as certain to succeed as any, and if healthy, the rich, deep-blue flowers are really unsurpassed.

The *Rock Alyssum* (*A. saxatile*) produces a profusion of yellow flowers in spring, and grows well on the rock-work. The *Androsace* family, like the Gentians, are difficult to manage, but they are especially neat and pretty when in bloom; and even the plant itself reminds one of a dense mass of rich green moss.

Anemone pulsatilla is a valuable little "Wind-flower" that blooms very early, producing purple-colored flowers.

Arabis alpina, the Alpine Rock Cress, shows its numerous white flowers quite early, is hardy, and very easily managed.

Iberis sempervirens, the Perennial Candytuft, has a profusion of snowy-white bloom in April and May.

Primroses and *cowslips* must certainly have a place in this department, no matter if they are old-fashioned, but they succeed best in partial shade.

And the *violets*, too, for some of them are hardy, especially if well protected during winter, and well do they repay us for a little extra trouble.

For our early Spring Garden, we must depend on the bulbous plants to a great extent. Prominently in this connection, comes the *Snowdrop*, *Crocus*, *Scillas*, *Snowflake*, *Bulbocodium vernum*, *Grape* and *Musk Hyacinths*, *Daffodils*, and *Early Tulips*. These must all be planted in the autumn, as indeed should all the plants which are enumerated in this paper, so that they may become established in their new homes before the warm suns of spring bring out the bloom.

In our own native flora may be found as pretty a set of plants for spring blooming as those taken from the lists of high-priced exotics.

The general impression that "wild flowers" will die if removed, arises in most instances from the fact that the transplanting usually takes place whilst they are making a vigorous growth and bloom. Of course they will die, and so would a fruit tree, if moved when growing and in blossom. Leave these plants until the foliage shows signs of maturity, then the operation will be comparatively easy. Those species which are found in shady spots

should have a like situation in their new quarters, and others that really prefer the full rays of the sun, may be planted in the most exposed places.

As a partial list of native plants for early bloom, we would suggest *Anemone nemorosa*, *Hepatica triloba* (Liverwort), *Caltha palustris* (Marsh Marygold), *Arabis lyrata* (American Rock Cress), *Claytonia Virginica* (Spring Beauty), *Dicentra cucullaria* (Dutchman's Breeches), *D. Canadensis* (Squirrel-corn), *Epigœa repens* (Trailing Arbutus), *Erythronium Americanum* (Dogstooth Violet), *Mertensia Virginica* (Virginia Cowslip), *Phlox subulata* (Mountain Pink), *Saxifraga Virginius* (Early Saxifrage), *Viola blanda* (Sweet White Violet), *V. sagittata* (Arrow-leaved Violet), *V. cucullata* (Hood-leaved Violet), *V. pedata* (Bird-foot Violet), etc.

The above will be sufficient for a commencement, and others may be added as experience teaches what will best succeed.

H.

Pluck.

SOME people consider taking the entire charge of one's own garden in the light of true heroism, and that the man who possesses the courage to ignore the professional gardener, and in his stead superintend the preparation of his soil, the planting of the seeds, the arrangement of his lawn, the charge of his greenhouse, and the hundreds of minor matters as well, is little short of a mortal whom one might read about in the pages of a romance, but never see in real life.

But there are hundreds such as these, scattered all over our land, whom we may well be proud to honor, as the typical American, divested, indeed, of all aspiration for fame in horticulture, that does not originate from his own practical personal experience. And what can we say for the typical woman, as well—the true country lady, who deems it as much of a duty to oversee personally, every portion of her domain, be it large or small, as it is to bestow her personal supervision on every department of her household arrangement?

We know we speak the opinion of every right-minded horticulturist when we assert that to such as these all honor is due. Not that they need any such incentive, for the fruits of their labor are a far greater reward than any commendation from the writer's pen.

To learn all the little arts of the science, or profession (or by any other term that may be applied to gardening), requires something else than the mere fact of looking after the help; it means that we must "put our own shoulder to the wheel," roll up one's sleeves, and unravel mysteries through the medium of one's own hands.

In a commercial point of view, this subject acquires additional force, for if anything will induce some people to superintend their own work, it is assuredly this direct appeal to their pockets. And yet, independent of this strictly pecuniary, or selfish motive, we have many instances on record where men, and women too, have made horticulture the business of their lives, solely from a love for the pursuit; and singular as it may appear, such as these are successful in their enterprise, with scarcely an exception. Is not the reason sufficiently plain? It is because their heart is in their work, and like the thrifty, "forehanded" farmer, they say "come, boys," in the place of "go, boys," which is simply another way of expressing their desire to help themselves.

COMPARATIVELY few persons are aware how very attractive evergreens appear when closely massed on the lawn. A bed of young plants, say nine or twelve inches in height, with distinct foliage, is particularly pleasing. One of the best for dwarf bedding is the genus *Retinispora*, with its delicate, attractive branchlets. A bed of these, composed of the now numerous forms, is a sight to be remembered, and is quite as handsome as a collection of choice bedding plants. The many dwarf forms of Arbor Vitæ, Spruce, etc., are also a valuable auxiliary for this system of bedding, and when interspersed with a few Junipers, the fine effect is considerably enhanced. The variegated evergreens must not be overlooked when making the selection. —*Josiah Hoopes.*

The Flower Garden.

Floral Novelties of the Year.

LESS novelties of startling merit have been introduced this year than for some seasons previous, and we have taken little pains to ascertain the merits and demerits of those introduced within a year. However, Mr. Vick, of Rochester, who has experimental grounds, and is as fair-minded in reports, as any tradesman, gives the following notes of the best, which seem to deserve more than a passing notice; although he does not hesitate to condemn any which would prove liable to disappointment and failure.

Some of them may be newly discovered species, but usually they are supposed to be improved varieties of some of our old favorite flowers. A new color, even, of many kinds, like Phlox, is sufficient to make a novelty. Some of these novelties are acquisitions for which we have reason to be thankful, but the majority are generally unworthy the notice of American cultivators. A little difference in form, or a new shade of color, is not of sufficient importance to most of our readers to induce them to pay the price usually demanded for these *new* things, while other varieties really as good can be bought for a tenth of the price. There are some, however, who desire the new, and when money is not scarce, it is a desirable ambition. We give below a full list of novelties for this season, with such remarks on each as we believe to be truthful, though in some cases we have had to rely on the descriptions of others:

Agrostis minutiflora.—An elegant ornamental grass of compact growth, with a mass of erect culms, terminated by a large inflorescence of airy lightness. Recommended for vases, as well as for cutting for winter bouquets.

Alonsoa linifolia, Roezl.—This is a new, and said to be a very pretty Alonsoa, introduced by Roezl. The habit is certainly very fine, and the flowers are also good. The plant is from twelve to eighteen inches in height, and the leaves are narrow and flax-like. It is said also to flower very freely. Flowers scarlet.

Alonsoa myrtifolia is introduced by the same, as the name indicates, with leaves like the Myrtle. It is of more vigorous habit than the previous one, and grows more than two feet in height. Very large flowers, of intense scarlet.

Amaranthus amabilis tricolor.—A species of Indian origin; plant of a bushy habit, twenty inches in height; leaves broad and long, rose, yellow, and fiery red, studded with spots of intense brown.

Amarantus Henderii.—This is thought to be the most beautiful Amaranth grown; from three to five feet in height; leaves long, sometimes twelve inches; and with the branches gracefully bending.

Amaranthus olbiensis Queen Victoria.—Leaves long and narrow, like *A. salicifolius*, but red and yellow, like *A. tricolor*, and if it generally comes true and the colors are bright, it must be a very pretty plant indeed.

Amarantus sanguineus elator.—This is represented as a mammoth variety, often nine feet in height, while the colors, claret on the upper side of the leaf and crimson on the lower, are said to be strong and clear.

Amarantus salicifolius splendidissimus.—An improvement on A. salicifolius, but in what way we have not been able to learn, unless in a brighter colored leaf, which is said to be "rich golden and purplish red."

Bismarck Larkspur.—Flowers red-striped, and thought to be a cross between the Candelabrum and Emperor Larkspur. Growth only from nine to ten inches.

Blumenbachia (Cajophora) coronata, which we have never seen, is represented as a pretty plant, with large orange-colored flowers. It is a native of Peru, and was sent from there by Mr. Pearce, late botanical collector for James Veitch & Sons, of London. The flowers are borne in great profusion, and are of a striking orange-red color, coronal shaped, about three-quarters of an inch deep, and an inch-and-a-half in diameter. The plant is covered with stinging, nettle-like hairs, like the Loasa.

Celosia cristata variegata, var. pumila.—

A dwarf variety of the variegated Cockscomb introduced several years ago. That was so untrue that it proved useless, and the more conscientious seedsmen of Europe refused to sell it on this account, as several informed us when we sent them orders for the seed. It was also so late as to be of little account except at the South, even had it proved true. This dwarf sort may or may not prove better.

Cellular Victoria Aster, crimson.—A new and bright color of the Victoria Aster. It is said to be very constant in its color.

Centaurea Americana Halli.—This is advertised as a new color of our American Centaurea, from Texas, but we have no doubt t is the same we have supplied to our customers for several years. All who have sown our Centaurea seeds, know there are two colors, one lilac, and the other purple. We have never separated them, and we have no doubt it is this dark purple variety that is now sent out on the other side of the water as a novelty.

Cleome Sesquiorgyalis.—This is a remarkable annual on account of its great size, good specimens growing ten feet in height. The leaves are very large. It certainly will be a curiosity, and all will like to see it, but if the engraving is correct, we cannot think that as an ornamental plant it will ever equal the Ricinus, which, for a large ornamental annual, and for common use, is without a rival—that is, in our opinion. It is from South America.

Dianthus barbatus nanus compactus florepleno—all of which simply means, *Compact Dwarf Double Sweet William.* This is a very neat dwarf variety of the Sweet William first brought out last season. The habit of the plant is very good, but we have not yet seen the flowers.

Double Cineraria.—New colors and superior strains of the Double Cineraria are described by several of the European florists.

Eragrostis maxima.—A new Ornamental Grass from Abyssinia, from three to four feet in height, and a strong plant. It is said to produce from fifty to a hundred richly-leaved culms, and very handsome, terminating in graceful panicles. It is an annual.

Fedia cornucopia floribunda.—Leaves very decorative, with a mass of brilliant scarlet flowers.

Fenzlia dianthiflora alba.—This is a white variety of the little and pretty Fenzlia dianthiflora.

Gomphrena prostrata var. argentea.—Low, prostrate plant, forming almost a carpet; leaves and flowers white.

Imbricated Pompon Aster, White.—The Imbricated Pompon are the most perfect and beautiful of all the small Asters. This new white variety, like the White Dwarf Chrysanthemum, changes to azure blue after being open for a day or two.

Leptosyne Stillmanni.—A composite annual of dwarf habit, only about nine inches in height, blooming freely, with large orange-yellow blossoms. Perennial, and recommended for herbaceous borders.

Linaria Maroccana was discovered by Dr. Hooker on the Atlas Mountains. Flowers purplish, and continue in flower a long time.

Loasa hispida, Roezl.—This is an erect-growing species of Loasa, attaining three feet in height, with narrow leaves six inches in length. Plant two feet in height. Flowers yellow and white.

Lychnis Haageana nana.—A dwarf Lychnis with flowers as large as the old varieties of Haageana, while the plant being only eight inches in height and very compact, is not apt to be injured by the winds, like the larger sorts.

Lychnis Haageana nana hybrida.—A new dwarf Lychnis, with flowers as large as the old Lychnis Haageana, while the plant only attains eight inches. If flowers are abundant, it must make a very pretty plant, and if it will endure our hot sun, may make a desirable plant for bedding.

Lychis viscaria alba is a white variety, and is new only in color.

Myosotis Alpestris, Dwarf White and Blue, two dwarf and very pretty Forget-me-nots from the Alps. Only about four inches in height.

Nasturtium Ruby King, a dark-leaved dwarf Nasturtium. Flowers very pretty pink,

shaded with carmine. In England the Dwarf Nasturtiums are excellent bedding plants, giving fine masses of color, but in this country, perhaps on account of our summer's sun, they do not flower freely.

Oxalis rosea alba, a white variety of annual Oxalis that re-produces itself from seed.

Penstenmon Palmeri is of very robust habit, growing four or five feet in height, with broad, short and open mouth. The corolla of the flower is peach-colored, the reflexed lobes of the lower lips marked by a central reddish line, and remarkable for its conspicuous projecting yellow-bearded sterile filament. We saw it in the Rocky Mountains, and have obtained seeds from Utah.

Phlox Drummondii grandiflora splendens, one of the new large-flowered Phloxes; and they are really magnificent. In less than ten years from this time the Annual Phlox will be the best and most popular annual in cultivation in America—at least so we think—and and in no place do they flourish as in America. This professes to be a new color, but if the colored plate is a fair representation, we had abundance of this color in our grounds last year.

Phlox Drummondii nana compacta (*Chamois Rose*), a dwarf, compact Phlox, of a chamois rose, or somewhat nankeen color; but we have never found these dwarf Phloxes healthy. They all seem to be sickly and unable to bear an American sun. We have hundreds of dwarf plants every season, but could never select seeds that would give a healthy plant.

Phlox Heynholdi cupreata.—Flowers of a pretty coppery hue, but we would not give a penny for the whole Heynholdi strain of Phlox. Each plant needs an attendant with an umbrella to protect it from the sun.

Rhodanthe Manglesii flore-pleno. — A double variety of that old and beautiful everlasting *R. Manglesii.* A double dwarf variety is also advertised, with smaller flowers, but so abundant as to literally cover the plant. We are really prepared to believe these are decided acquisitions, and shall await their flowering with the greatest interest.

Ricinus "Duchess of Edingburgh."—A bronze-leaved variety from the island of Suzon. Of a compact branching habit, five feet in height. If the description is true, which represents the foliage to be dark reddish-purple, this must be a valuable acquisition indeed.

Ricinus Gibsonii is a remarkable Ricinus, or Castor-Oil Bean. It grows four or five feet in height, and its only merit over other varieties is that it has deep red foliage. If the color is bright and good it must be a desirable acquisition, particularly for this country, where the Ricinus does so well. It is said to be a native of the Phillipine Islands, and was named in honor of Mr. Gibson, of Hyde Park. We are hoping a good deal from this.

Scabiosa major grandiflora fl.-pl.—This is recommended as a double Scabiosa like the dwarf double sorts, but very large, three inches in diameter, and blooming until frost. All varieties of Scabiosa bloom late, and sometimes survive the winter and flower the second season, even as far north as Rochester.

Scabiosa candidissima plena.—Our readers will recollect the Double Dwarf Scabiosa, introduced some ten years since. This is a white variety, and being pretty pure in color it is claimed will be desirable for bouquets.

Scabiosa Tom Thumb, fl. pl.—This is a very dwarf double sort, not growing more than seven or eight inches in height, and therefore may be useful, when it becomes plenty, for edgings.

New Pelargoniums.—The following new double-flowered Zonales, raised by M. Jean Sisley, have been introduced in Paris this season.

George Sand—flowers large, white if kept in doors, and assuming a slight rosy flesh color when exposed to the sun.

Francois Pertusati—flowers large, yellow, margined with white.

Carl Vogt—flowers of medium size, of an orange salmon color, quite new shade.

All the foregoing are fine growing varieties.

Gardening.

Subtropical Gardening.

Read before Massachusetts Horticultural Society.

BY WILLIAM GRAY, JR.

SUBTROPICAL gardening, so called, means the combination of plants remarkable for habit and foliage with the brilliant flowers, which formerly were used alone under the name of "carpet bedding."

Some years ago, when this last system had reached its climax of absurdity, with its meaningless masses of glaring, unrelieved color, and its ribbon borders wandering aimlessly all over the land, taxing the resources of the largest places to raise Coleus and Pelargoniums by tens of thousands, a new departure was taken in Paris by the use, in the smaller parks and squares, of plants of striking foliage to relieve and diversify the masses of color.

To William Robinson, more than to any other person, is due the credit of introducing this great improvement into England. As correspondent of the London *Times* he went to Paris in 1867, and by his letters to that journal gave the impetus to the change which has revolutionized English summer gardening. He has since published many books, the main feature in all being an earnest advocacy of a more natural style, and has established "The Garden," that admirable magazine, whose motto, "The Art itself is Nature," is the keynote to all his writings. And I am told that now, as is usual in gardening matters, the English excel the French in the arrangement and effect of their groups and beds.

To come nearer home: we have a climate better than that of Paris or London for the growth of tropical foliage, and are free from the constant rains which in England mar the beauty of their flowering plants.

It is not necessary to say much about the detail of cultivation; the beds must be deep and rich; mine are four feet deep, filled with an equal mixture of loam and well-rotted manure, for flowering as well as for foliage plants. By digging over every autumn, beds so made will last many years without showing signs of exhaustion; the value of such preparation is that watering is rarely needed, even in our longest droughts. I find, also, that a mulch of two inches of spent hops, spread over the ground at the time of planting, is of great benefit; it keeps the ground moist, prevents hardening from rain and the cracking afterwards in the sun, keeps down weeds, and prevents the spattering of earth on the foliage, which so disfigures it, especially that of variegated Pelargoniums. If one wishes fine beds of bloom it is necessary to have some way of protecting them from our heavy thunder showers, which in a few minutes will ruin Pelargoniums for a fortnight. I use light wooden frames, rather larger than the beds, covered on the top only with cotton cloth.

Among suitable plants the Canna takes the first place for beauty, for diversity of foliage and habit, for rapid growth, and, in some of the newer varieties, for the profusion of flowers, almost equal to those of the Gladiolus. Add to these qualities its cheapness, and the ease with which its roots can be kept through the winter, and I know of no plant that can compare with it for general usefulness.

The best kinds tried by me are:

Anneii, tall growing, sea-green leaves, salmon flowers.

Premices de Nice, medium growing, green lanced-shaped leaves, yellow flowers.

Marechal Vaillant, large growing, bronze-veined leaves, orange flowers.

Nigricans, large-growing, metallic leaves, flowers of no account.

Jean Vandael, large growing, green leaves, large red flowers.

Purpurea spectabilis, large growing, greenish purple leaves, scarlet flowers.

For foliage only, *Auguste Ferriere*, of the largest size, green leaved, with narrow stripes and edging of dark red, and *Discolor*, of medium size, with beautifully veined leaves of bronze and green; these two varieties have never flowered with me, but are described in M. Chate's book on "The Canna" as having orange-red flowers. For further information I would refer to the above mentioned book,

where a great number of species and varieties are described.

It adds much to the effectiveness of the beds to plant their centers with Tubers, and to edge them with seedlings of *Canna limbata*. Seeds started early in April will make plants large enough for this purpose by the first of June. They should be set out twelve inches apart, and eighteen inches from the older plants. They grow from two to two and a half feet in height, and, having leaves to the very ground, give a massive effect and luxuriance to the beds not attained by plants from Tubers alone. For color, surround these seedlings with Dwarf Pelargoniums, Golden Feather or *Achyranthes Lindeni*.

Caladium esculentum, five or six in a round bed, planted not too closely; single plants of the green *Arundo donax*, surrounded by those of the variegated varieties; specimens of *Ricinus sanguineus* for red, and *Brasiliensis* for green, which will grow eight feet in height in a single season from seed, in a rich soil and with plenty of water; the dark green *Gymnothrix latifolia*, the perfection of symmetry; and *Erianthus Ravennæ*, the perfection of grace; the *Cyperus Papyrus;* and for those who have room for winter keeping, the *Musa Ensete*, are some of the plants suitable for the purpose.

The surfaces of such beds should be carpeted with dense, low-growing plants of variegated foliage, as *Abutilon vexillarium pictum*, or the Japan honeysuckle (*Lonicera aureo-reticulata*), or flowering plants, as *Lobelia pumila grandiflora*, *Nierembergia gracilis* or *Clematis Jackmanni*.

The Pampas Grass is another superb object, but, unlike those above mentioned (excepting *Erianthus Ravennæ*), may be left in the ground in winter; and, if covered with a large barrel, with strawy manure piled up to and over the top, will generally go through unharmed, and increase in size and beauty year by year. For a perfectly hardy subject the Ailanthus, grown to the height of eight or ten feet, and pruned closely back each year to the top of the stem, will send out long, drooping, pinnate leaves, which rival palms in elegance and effect. *Aralia canescens* and *Dimorphantus Mandschuricus*, entirely hardy, should have a place where room can be given them for the spread of their great leaves. If you have a rocky bank where grass will not grow, plant *Yucca filamentosa*, free flowering and the hardiest of its race.

Succulents may be used in subtropical gardening, but should be kept in beds by themselves, and only planted in the more artificial parts of the grounds. A great variety of these may be grown together—Agaves, Echeverias and Sempervivums. Put the largest plants in the center, leaving room enough between to see them on all sides; finish the bed with one or more rows of *Echeveria secunda glauca*, and carpet the whole with *Sedum Corsicum* or *Pruinosum*. All kinds of geometrical designs may be worked out with these plants, remembering that much of the final effect depends on the most careful and exact planting.

Plants with colored foliage are among the most effective for this style of gardening; neither sun nor rain dim their beauty, and they do not need the constant care and attention that flowering plants must have at all seasons. I would suggest massing them in beds of simple form, circles and ovals being the best, and edging them with plants of a different color; for example: *Coleus Verschaffelti*, bordered with Golden Feather; *Achyranthes Lindeni*, bordered with the striped grass *Phalaris arundinacea picta;* or *Centaurea gymnocarpa*, with a border of dwarf scarlet or pink flowering Pelargoniums.

The golden Crystal Palace Gem, or Albion Cliffs (the best white-edged bedding Pelargonium), edged with a blue lobelia, are types of the many arrangements that may be made from these materials.

Two of the newer bronze zonales, Harold and The Moor, may be planted in small beds by themselves, their golden centres and edges and their brilliant chestnut cones showing to the best advantage next the grass, with no dividing line of contrasting form or color.

Lastly, although hard to grow satisfactorily in our climate, the golden tricolors, Mrs. Pol-

lock and Macbeth, edged with the dwarf-growing and very dark Coleus, Emperor Napoleon, which throws the beautiful colors of the Pelargoniums into high relief.

For flowering plants none are equal to the Pelargoniums. These should be planted in beds of a single kind, edged with one of a different color, or with a variegated leaf, or with a plant of a different species. The best that I have tried are:

Gen. Grant, Warrior,	Tall-growing scarlets for large beds.
Coleshill, Sir Chas. Napier, Sir John Moore,	Medium in size.
Orbiculatum, Omega,	For dwarfs.

Of dark scarlets—Douglas Pearson and Wellington.

Of pink—Master Christine and Pink May Queen.

The whites and salmons are not satisfactory for bedding; the former are not free flowering enough, and a better and more permanent effect can be obtained from the white-edged Albion Cliffs, or from the variegated Alyssum, than from any white flowering plant with which I am acquainted. The Alyssum, when well grown and full flowering, gives one of the softest and most harmonious effects to be obtained from the combination of the foliage and flower.

Centaurea candida is another beautiful edging for beds of Pelargoniums, but it must not be planted too close to them, for if shaded it is almost sure to damp off; in fact, in a wet season it is a difficult plant to keep a line of in good order.

These are some of the materials to be used. Many things have been omitted that cannot easily be obtained, or easily grown, or kept through the winter without great expense; but these, by themselves, if well arranged, will make a garden a source of never failing pleasure to its owner and all comers; and I take it that the highest art is to get the best results from simplest means.

Palms and tree-ferns, yuccas, agaves and musas, all so beautiful, require too much care and are too costly to be generally used.

As to arrangement, it is impossible to give any but general directions, so much must depend on the size and shape, the locality, exposure and surroundings of the garden. The foundation of all must be good turf, well kept. Without this no planting can be satisfactory, and perhaps the best general rule that can be given is to leave the center open for breadth and dignity of effect, and to confine the planting to the sides, following a walk making the circuit of the place.

A New and Beautiful Feature in Landscape Gardening.

FEW can form any adequate idea of the brilliant nature and effects produced by the illumination of a tasteful lawn and pleasure grounds at night by a liberal display of gaslight. This is always expensive, because it can be secured only in densely populated places, where gas is manufactured; but to see the display in all its gorgeous magnificence one must visit the western part of Pennsylvania, where oil wells and gas wells are prolific and possess stores of inexhaustible supply. In the grounds of Senator Anderson, of Titusville, Pa., can be seen the effects of gas illumination to a striking degree; of the way in which the flow of gas from a large gas well was utilized. Mr. William Webster, the landscape gardener, thus writes: "A little more than two years since I was called upon to remodel the pleasure grounds of Senator Anderson, of Titusville. One of the principal improvements then projected was the laying of water pipes for ornamental purposes, such as supplying fountains, an artificial lake, etc.; and about the time of the completing of this work an event occurred which was destined to add still further to the attraction of these grounds.

This event was the striking of the Newton gas well, which created such an excitement at the time on account of the immense flow of gas. So great, indeed, was it, that a gentleman who measured the gas through a meter informed me that the flow was upward of 5,000,000 cubic feet per day, enough to supply the whole city of London or Paris.

When first struck, the noise from the escap-

ing gas was tremendous, and could only be likened to the rushing past at full speed of a heavily laden railroad train, making the very earth around tremble as it escaped from its narrow orifice.

During the excitement a company was speedily organized and pipes laid to bring the gas to Titusville, a distance of more than five miles, and even here in town the pressure is immense. No sooner was the success of the experiment demonstrated, than Mr. Anderson conceived the idea of illuminating his grounds with it, and the result has proved that he was perfectly correct in his estimate of the effect it would produce.

These grounds are in the form of a parallelogram, and are laid out with a serpentine walk traversing two sides of the boundary, between which and the fence is a beautiful bank of shrubs and flowers. The lawn is divided into two parts by a carriage road.

In the center of the front lawn is a large and elaborate fountain, consisting of various figures and a large number of jets, the whole surmounted by a figure of Hebe, pouring water from a pitcher. The basin into which the water is poured is seventeen feet in diameter, in which may be seen a large number of gold fish. A wide gravel walk encircles the basin, flanked with flower beds that are planted with flowers of the most brilliant colors.

About the center of the rear portion of the lawn is a miniature lake, from the center of which rises a pile of conglomerate rocks, with a large revolving jet. On the bosom of this little lake float ducks and swans, and the water teems with the beautiful speckled trout. One portion of the grounds is devoted to croquet and a large covered swing. At the time of laying out of these grounds the streets on the outside were planted with trees of small size, and as it seemed too long to wait, say twenty years, other large trees were removed hither from the forest. These trees have now entered the third season since removal, and are growing vigorously, in all their pristine beauty, and being planted on three sides of the lawn, form a magnificent setting to the gem within.

Beautiful, however, as the scene may appear in sunlight, it is only in the evening, when lit up with the large and numerous jets of gas, that its greatest attraction becomes apparent. The large circular jets seem like coronets of flame, and the arch under which the visitors pass is the most brilliant thing imaginable. It is then that the beautiful effect of the play of the fountains is seen. As the water from the numerous jets is thrown around, the spray appears like showers of pearl and silver against a setting sun.

A *Herald* correspondent in describing a lawn party given on these grounds, characterizes it as a scene of "Oriental splendor," and remarks that "the evening receptions of Queen Victoria in the grounds of Windsor Castle could never surpass the scene of that night."

A prominent architect of Philadelphia also declared that the brilliantly illuminated scene was equal to anything ever described in the "Arabian Nights."

Siberian Arbor Vitæ.

YOUR correspondent is right; this Arbor Vitæ is not a native of Siberia. Its name was probably given in England because its hardiness adapts it to a Siberian climate. The propriety of its name has been illustrated the past winter at the Garden City of Mr. Stewart. A year ago we furnished for planting them a large quantity, varying in size from two to ten feet. The smaller had been transplanted within two years. The larger were taken from an old and neglected plantation, without transplanting or culture for ten years. They all lived through the summer, and now, in the last of May, are fresh and healthy. At the same time, and also last fall, were planted large quantities of the American Arbor Vitæ, purchased by Mr. Stewart from different establishments. Among these the destruction from the past winter is so great that I incline to use the expression of the Florida planter, in response to my inquiry, after a hard frost, if his orange trees were killed: "Yes, *sir;* they are killed unanimously."

S. B. Parsons.

Fruit Culture.

The "Pinneo Pear."

BY WILLIAM H. YEOMANS.

WE agree most fully with what was said regarding the quality of this pear, called the Boston, in an article in the HORTICULTURIST for April, copied from the *Country Gentleman*, but, in behalf of the town of Columbia, and especially in the name of the originator of this pear, who long since passed from earth, do we protest against this effort of Mr. Hovey's to retain the honor of having disseminated that pear. It is a mystery, that, after the origin of the fruit had been satisfactorily proved, nearly twenty years ago, Mr. Hovey should still insist upon being the disseminator. Now that the real disseminator has long since been dead, it may to some be a matter of little consequence, but it is proper that the credit should remain permanent to the town of Columbia, in which Dea. Pinneo dwelt. If there is any honor in originating new and valuable fruits, then let that honor rest where it justly belongs. The brief description in the communication alluded to, is very far from a correct statement, as will be discovered.

Now, a few words of history: It is supposed that in the early part of the last century, Dea. James Pinneo settled upon the place in Columbia which long bore his name; the church records of Columbia show baptisms of that name from 1750 downwards. The records also show the following:

Dea. James Pinneo, died April 10, 1789, Æ 80 years.

Dea. James Pinneo, Esq., died June 14, 1824, Æ 90 years.

James Pinneo, Esq., died Jan. 14, 1838, Æ 72 years.

These represented three generations in the direct line, and all occupied the Pinneo place until about forty years ago, when the proprietorship changed, and no male descendants remained in town.

It is said that the elder Dea. Pinneo found a young pear tree growing wild in a piece of woodland, which he transplanted and cared for; in process of time this bore fruit, and of such good quality as to recommend it to the protection of Mr. Pinneo, and as an evidence not only of his faithfulness to the tree, but of the tree to him and his descendants, and the strangers that have dwelt in the land, it may be stated that the original tree still survives, and is at the distance of only about two miles from the writer; but the ravages of time have left their effects, and now it can only be said of the old tree, well done good and faithful servant.

But the valuable qualities of this fruit could not be concealed, and as a consequence there is hardly a farm in the whole town of Columbia but that has trees of this variety of pears upon it; not in great numbers, because in those early days fruits were not as highly prized as at the present day. Nor was its reputation confined to its parent town, it extended into adjoining towns; they were cultivated and kept for sale in a nursery that existed in town in the early part of the present century, and if the pear had no extended, outside reputation, it was no fault of the originator, nor of the pear, but for the want of a market; up to about 1840 there was no sale for pears at prices sufficiently remunerative to warrant the trouble of packing and marketing; at that time they could be exchanged in the Norwich and Hartford markets for groceries, at prices varying from fifty cents to one dollar per bushel.

The oldest inhabitants here have known of its being called the Pinneo pear during the whole period of their remembrance, which covers nearly all the time passed in the present century.

But it appears that the purchasers of this fruit were in the habit of shipping the same to Boston, where Mr. Hovey discovered it, and became so well satisfied as to its valuable qualities, as to secure some cions, by which means he obtained the fine rows named, which appear young indeed, in comparison with the many in this vicinity. In 1857, in reply to inquiries made by Dr. G. W. Russell, a pomologist, of Hartford, Mr. Thomas L. Brown, of whom he had grafts, wrote as follows:

"Last evening, I called on Dea. Hutchinson and obtained *definite* and *reliable* information of the origin of the Pinneo pear.

"More than fifty years ago, Dea. H. said that he went to Columbia on purpose to get of Dea. Pinneo some pear sprouts for himself. At that time Dea. Pinneo said to him (Dea. H.) that he was once mowing bushes on the out lot, and found a small pear tree, which he spared. In the proper time for setting trees, he dug it up and set it out near his dwelling, thinking to have it grafted some day, but concluded to let it grow as it was, and see what fruit it would bear. Well, it bore fruit which was good, and he did not wish it changed. Sprouts came up and were in turn set out, and bore the same kind of pears, and as the fruit became widely scattered, the fruit came by common consent to be called the Pinneo pear."

Nor is this all; at the seventh session of the American Pomological Society, held in the city of New York, in 1858, the question came up for discussion, during which Mr. Barry moved that the pear be called the Pinneo, which was carried, which fact was known by Mr. Hovey, who was present, who has, notwithstanding the same, persisted in calling the same the Boston.

It has been asserted as a principle, that "*No man has any right to name or re-name a fruit which he does not originate, unless with the knowledge, counsel and consent of all, or the majority of those who cultivate it, or with the concurrence of the nearest pomological society put in possession of the facts known concerning the origin and other names of the fruit.*"

This has not been done, nor will the numerous proprietors of the trees of this pear in this town, ever consent to being deprived of the name of Pinneo so long as they are allowed an expression.

And again, the pear was recognized by the Hartford County Horticultural Society by the name of Pinneo, as proved by the record, years before the name of Boston was recognized by the Massachusetts Horticultural Society.

Our excuse for thus trespassing upon your space is the desire that justice may be done and proper acknowledgment be given, by properly recognizing as the name of this pear, the name of him who saved it from the stroke of the scythe, and was the means of disseminating it in our community.

Columbia, Conn.

What of the Persimmon?

BY A. S. FULLER.

MUCH as pomology has been studied and practiced in this country, there are still many meritorious wild fruits which have received very little if any attention.

The fact of a fruit in its wild state possessing little merit, is not a sufficient reason for total neglect of attempts at improving it, for had this been the prevailing idea among our ancestors, we should probably have had nothing better than the ascerb crab pears, now found growing wild in the forests of Europe, and other fruits of like quality.

To even mention the persimmon among the wild fruits of our country deserving attention, may cause a smile upon the countenances of many persons who have never thought of or considered the merits which it actually possesses. In the first place the tree is one of the most beautiful in form of growth and foliage, besides being hardy, healthy, and adapted to a wide range of soil and climate. In fact, persimmon trees are worth cultivation for ornamental purposes, leaving the fruit out of the question. Generally the fruit of the persimmon is considered quite inferior, and as a rule, scarcely edible, until touched by frosts in autumn, still there are many wild varieties varying as widely as the wild plums, crab apples, and similar fruits, and among them really distinct and valuable sorts might be found. While the usual form of the fruit is globular, I have seen them oval, oblong, and in one instance oblong pointed, resembling very closely in size and shape Coe's golden drop plum. Then again, there are wild sorts which ripen long before frosts, as I know from personal acquaintance, and doubtless many other variations from normal types could be found if a close search was made in regions where this fruit abounds. Inferior in

quality as this fruit may be as usually found in its wild state, still it is naturally superior to the original of our choice sorts of the pear, or even apple. Now, from what has been done with the latter well-known fruits, we may judge of what could be done with the former. We should commence with the best sorts to be found, sowing the seed, giving high cultivation, and then selecting the best of these when their merits became known, after fruiting.

To hasten the period of fruiting, cions from the seedlings may be inserted into larger trees, kept expressly for this purpose, a system generally practiced by pomologists when raising pears and similar fruits from seed. Years of valuable time are thus saved by the use of large bearing trees for stocks, upon which to test the seedlings..

In addition to the chances of producing new and improved sorts of persimmons from seed, without any special effort on the part of the grower, we have now several exotic species of promise, with which our native one might be hybridized. A hybrid between the *Diospyrus Kaki*, of Japan, and our own *D. Virginiana*, would be a step in the right direction toward the production of distinct, if not valuable varieties.

The Japanese species succeeds in the Northern States, and the tree is a more rapid grower, and the fruit superior to ours, hence its value as one of the parents in producing hybrids.

The field is open, and the chances of producing a valuable fruit almost certain to the man who will take up the culture of the different species and varieties of persimmon, bestowing the same care and skill as in improving other kinds. Who will do it?

Notes from Michigan.

THE past winter has been the most severe experienced in Michigan for many years, and the damage to fruit trees of every kind, and also to vines and shrubs is very great. Peach trees have suffered severely, the damage not being confined to the buds but extending to a considerable part of the wood, in some places the trees are entirely destroyed. In some well sheltered orchards, some of the buds have escaped destruction, and a moderate crop of peaches is expected. Grape vines which were left on the trellises have lost a great part of their best wood. The Catawbas and Early Hartfords have suffered most, but the Concords and Delawares are also much damaged. Rogers' Hybrids, Iona, Isabella, etc. have generally been laid down and covered, and in common with all varieties that have been similarly protected, have probably received very little if any damage. Raspberries unprotected by a covering of some kind have been killed in exposed aspects.

Two singular instances of the accidental destruction of choice greenhouse plants occured in this city during the past winter. One was in the greenhouse of Mr. Sickler on High street West, which is heated by steam; in order to prevent rust he painted the pipes with gas-tar which when heated exhaled a destructive gas which killed the plants. The other occured in the greenhouse of Taplin & Davis on Twenty-fourth street and was caused by the bursting of a gas main, the gas from which entered a sewer which was connected with the greenhouse by tile drains. The gas issued from the joints of the tiles and became diffused through the greenhouses, and the result was the almost total destruction of seven thousand dollars worth of choice plants.

Detroit, Mich. EDWARD MASON.

The Cause of the Yellows.

THERE are some facts which I cannot reconcile with the theory that the yellows in peach trees is caused by the loss of the fibrous roots, the result of a fungus. Last season very thrifty trees, the second year from setting, bore diseased fruit, having all the symptoms of the yellows—purple discoloration of the flesh, premature ripening, and an unusually high colored exterior. The trees made shoots from two to three feet in length, which proves very conclusively, that they were not very deficient in fibrous roots.

Should these trees be allowed to stand, they will present a sickly appearance the coming season, and may then, on examination,

show diseased roots. This, with the facts above stated, would tend to prove that the loss of the fibrous roots is the effect and not the cause of this disease.

Another fact which is against this theory is that peach trees on plum roots have died with the yellows. If the disease has its origin in the roots, it would appear that plum roots are subject to the same malady. Then why do not plum *trees* have the yellows? Nor is the theory that the yellows is caused by exhaustion of the soil, any more satisfactory. People who plant their trees where, a year before, beech and maple forest trees were growing, have the disease to contend with. There may be a remedy yet discovered, but it is doubtful. Any persons who are under the impression that they have discovered one, are respectfully requested not to publish it until they have tested it at least three years, for while people are testing inefficient remedies, the disease is spreading. J. A. D.

St. Joseph, Mich.

Immediate effect of Cross Fertilization of Apples.

CHAS. W. GARFIELD, Agricultural College, Michigan, writes the *Country Gentleman* as follows: "We made ten crosses, employing ten specimens in each cross. Perfected fruit was attained in all but three instances. In only three did we observe any variation in the specimens save that which would come as an effect of the gauze employed to prevent the ravages of the coddling moth. These cases were as follows: 1st. Wagener upon Tallman Sweet. There was a modification of flavor quite noticeable, the fruit being sub-acid. 2d. Tallman Sweet upon Astrachan. In this instance there was a manifest change in color, flavor and shape. The apples were quite mild to the taste, the color was very much modified, and the form was that of a flat apple. 3d. Tallman Sweet upon Wagener. The modification here was noticeable in all the specimens, in flavor and color. Two of these had no gauze on them, and the difference was quite as noticeable in these samples as in the remainder.

The Western Triumph Blackberry.

THREE years ago we saw advertised in a Western paper, a new blackberry, under the above name, and we ordered a dozen plants which came duly to hand, with a modest bill for the same amounting to five dollars. The plants were set out, and made a vigorous growth, producing a fair quantity of fruit last year, which we thought was of very good flavor, but not up to the standard for size. The past winter was quite a severe one on all the small fruits, the blackberry not excepted, but our Western Triumph passed through uninjured, and was this season more heavily loaded with fruit than any other sort in our collection. The berries are also large, and so deliciously rich and sweet that to add sugar would be superfluous. The ladies of our household pronounce this new blackberry a "Triumph," especially the dyspeptic portion, who have to deny themselves the privilege of eating sugar upon fruits of all kinds. If our Western people can succeed as well with this variety as we have, there is no need of sending East for Kittatinny, Wilson and Lawton blackberry plants.—*Rural New Yorker.*

Dwarfs and Standards.—"To produce a dwarf cherry tree," says Mr. William Cobbett, which is desirable for some purposes and locations, the stock must come from the stone of the Morrello or a May Duke, a Black Heart, a White Heart, or a Bigarreau; but for a tall standard tree, select stock from the small black cherry tree that grows so universally in the woods." The practice of modern nurserymen, however, as described by Mr. A. J. Downing, is to bud the finer varieties on the seedlings of the common black Mazzard, which is a very common kind, producing a great abundance of fruit and very healthy, free-growing stock. Downing also recommends budding low down on young stock. For dwarfs Downing also says the Morrello seedlings are used, but standards are universally preferred.

Window Gardening.

Parlor Plants.

BY EDWARD S. RAND, JR. READ BEFORE MASSACHUSETTS HORTICULTURAL SOCIETY.

THE general love of flowers manifests itself most noticeably in the culture of window plants. Alike in the parlors of the rich and the garrets of the poor we see the love of these bright gifts of nature—often, indeed, in the latter case the only indictation of an appreciation of the beautiful. The window plants are cared for and tended, they share with the children of the family the mother's solicitude, but often from their general appearance one would judge that the care bestowed was ill requited. Yet the fault is not in the plants; they will well repay all care, but that care must be directed by intelligence.

A plant is an organized being; it lives, it breathes, eats, drinks, and digests; its term of life varies from a few summer days to hundreds of years; its wants are few, its food simple, and essentially the same in all the myriads of species, from the pole to the equator.

An important point to bear in mind is that these wants—these needs of the plant—few though they be, are imperative and unvarying. A man may neglect to take food, or he may over feed, and perchance escape ill effects, but the more delicate organism of the plant refuses over indulgence, and is sure to suffer from privation.

We are thus led to the statement that the reason of the general ill success of parlor culture of flowers is too great or too little care. In the first place, a plant is killed by kindness—by provision for fancied needs; in the other by neglect to supply the essentials of healthy life.

A third cause also is a choice of unsuitable species of plants, for the healthful existence of which we cannot in parlor culture supply the requisites. Let us now briefly consider the life of a plant as shown by the wants which are essential to that life.

We have said a plant lives and breathes, and a want of provision for this breathing is, we hold, one great cause of ill success in parlor culture. A plant breathes through myriads of pores existing more or less numerously in the foliage according to the species. If these pores become in any degree clogged by the fine dust of the room, just so much is the health of the plant affected by the stoppage of one of the vital functions. The dry air of living rooms, often contaminated by furnace gas or unconsumed illuminating gas, is another source of ill health.

Plants must breathe a moist, pure atmosphere—although what is a pure atmosphere for a plant is not so for animal life, as plants exhale oxygen and inhale carbonic acid, while exactly the converse is true of animals—and an atmosphere charged with coal gases is sure to produce disease.

The food of a plant is derived partly (sometimes wholly) from the air, in the form of moisture, and partly from the earth in the form of soluble salts; this food it elaborates by its own peculiar organism and appropriates to its growth, and just in the proportion that this food is furnished in suitable form and quantity for such adaptation, will be the healthy growth of the plant. Plants, too, have their seasons for feeding, and the supply of nutriment must not only be sufficient in quality and quantity, but furnished at the proper time.

Light, generally direct sunlight, is important to the health of plants; comparatively few thrive in shade, and with most the more light the stronger and more vigorous the growth. Plants grow to the light, and withdrawn from it they strive to reach it, and become what the gardeners call "drawn," that is, produce long, weak growth, with leaves at long intervals, instead of the short, stocky growth, which is in most plants a sign of health.

We thus have the essentials of health in the requisites of air, cleanliness, and light. These properly provided, with judicious watering and suitable soil, success is certain. Let us, however, consider these essentials somewhat in detail.

Air.—We have said a vitiated atmosphere is unsuitable for the healthy growth of plants,

and such is the air of most parlors and living rooms. Its life is dried out of it by its passing over the red hot iron of our furnaces and stoves. We can all remember instances where plants do well in rooms heated by open wood fires, the most healthy mode of heating a room, both for plants and human beings. Steam heat is better than that of furnaces or stoves, as the air is less contaminated, and can be kept moister. But it is not alone the dryness of the air that is injurious. From all furnaces or stoves more or less gases escape and contaminate the air, and where gas is used for illumination, a large percentage escapes unconsumed into the air of the room. Now, how can we remedy this? If possible, by growing our plants in rooms which are not lighted by gas or heated by furnaces or stoves. Where this is impossible, by securing by ventilation a complete change of the air of the room at least twice a day. Plants, especially those suited for parlor culture, seldom require a very high temperature, and most of our living rooms are too hot for them; a night temperature of 40°, rising to 65 or 70° by day, is quite sufficient for the healthy growth of most plants, and this rise of temperature should be mostly from sun heat.

Sudden changes of temperature, and cold drafts, should be avoided: to some plants a chill is almost as injurious as frost, During the present winter we have grown palms (*Latania*), agaves, *Cypripedium insigne*, *Tillandsias*, four species of ferns, Chinese primroses, and pelargoniums in a large entry where every cold night the mercury was as low as 42°, and more healthy plants one could not wish. A good plan is to separate a bow window from the room by a glass partition, making in fact a small conservatory, and thus pure air, moisture, and light can be secured. Evaporation of water on stoves or furnaces is of great benefit, and should be universally adopted; in fact the moister we can keep the air of the room, consistently with the health and comfort of the inmates, the better it will be for the plants; but let us remember that in a low temperature the moisture may be less than where the room is kept very warm.

Cleanliness is of the first importance. A dirty plant will not thrive. The fine dust always floating in the air of living rooms settles upon the plants. This is easily removed by sponging with lukewarm water, or by removing the plant to a sink and copiously showering it from the fine rose of a water-pot. The stem also of hard wooded plants should be occasionally sponged.

The frequency of showering or washing must be regulated by the necessities of the case or the nature of the plant. Some plants are impatient of water upon the foliage. In many cases dust may be removed by gentle brushing with a soft feather duster.

Under this head we may properly speak of the insects infesting house plants. These are few, and very little attention will keep plants clean.

Green fly, or aphis, which is the most common pest, is best destroyed by smoking. Place the infested plant under a barrel, put a few live coals in a dish, moisten some common plug tobacco that it may not blaze, throw it upon the coals, and let the plant remain in the fumes from five to ten minutes; then give the plant a good syringing or sprinkling, and the work is done.

Thrip seldom attacks house plants; should they be found, smoking will remove them. Red spider is kept down by moisture—frequent washing and sprinkling will destroy it.

Mealy bug is one of the worst pests of the greenhouse, but is rare on parlor plants. Washing will remove it, but the best plan is to touch the places where it is seen with a camel's hair pencil dipped in diluted alcohol.

Scale of several kinds is often found on the stems and leaves of parlor plants; washing with strong soapsuds and persistent application will remove it. A paragraph has been going the rounds of the papers recommending kerosene oil for scale on ivy; that it will destroy scale there is no doubt, but it will also kill the foliage. It might, however, be used cautiously if diluted with water, with which it will mix if a little soap is added.

A healthy plant is much less likely to be infested with insects, and if plants are kept in

stout, vigorous growth there will be little trouble from any insect pest. A warm, dry atmosphere is much more conducive to their development than a low, moist temperature. Generally, however, house plants have no insects which very little care when they first appear will not remove.

Light is very important to plants, and for most plants direct sunlight is necessary. A southerly window is the best exposure, but a deep bow window fronting the south, where the morning sun can come in on the east, and the light of the setting sun on the west, is the best for the growth of plants. If the choice is between an easterly or a westerly window, the easterly should have the preference, as the morning sun is better than the afternoon. The plants should be as close to the light as possible, as thereby there is less danger of their becoming drawn; they should be frequently turned, that all sides may have equal exposure; this is especially necessary with quick growing, soft wooded plants. Some of the revolving flower-stands are in this respect very useful, as they enable the plants to be turned to the light without the labor of lifting the pots. Light has also great influence upon the colors of flowers, which if grown away from the sun are usually pale and weak.

Water.—We have said that plants derive most of their food from the soluble salts of the soil which are taken up by the roots in a liquid form and assimilated to the uses of the plant. Sufficient and careful watering is most essential to successful culture, and it is from neglect in this particular that so many failures arise. The quantity of water needed varies with the nature of the plant; a very little suffices for some, others require a large supply. There are, however, very few plants that will flourish with water standing around the roots. Therefore, in potting, provision should be made by ample drainage for the escape of all superfluous water, and where saucers are used all water which drains off should be emptied. Watering may be more or less frequent according to the nature of the plant, but should always be thorough; not little driblets, given now and then, moistening the surface soil, and leaving the center of the ball dust dry, but a good soaking, thoroughly wetting all the soil until the water runs off; then do not water again until the plant is dry. The temperature of the water should never be below that of the air of the room; it may be higher, and the water may even be lukewarm; but the many paragraphs found in newspapers advising the use of hot water are no less pernicious than absurd. In a future paper treating of the best plants for parlor culture, we propose to prescribe more fully as to watering. The best mode of enriching the soil is in the water; guano, the salts of ammonia, and other manures may be applied in a soluble form; caution is necessary, however, lest the manure be too strong, thereby injuring the plant; and usually if the soil is good, no manure will be required. If a plant exhausts the soil, the best remedy is repotting.

Soil.—The soil in which the plant is grown is an important element of culture. For most house plants a rich, light soil is suitable, such as may be easily made by a slight mixture of fine sand with good garden loam. In this, if good drainage is secured, most plants will do well. Where, however, it can be obtained, a mixture of two parts well rotted turf and one part sharp sand is preferable.

If there is a neighboring greenhouse it is easy to obtain such soil, but any sweet earth which is not close, or by becoming so, allowed to get sour, will grow common plants well. The soil specially suited for particular plants will be prescribed when treating of those plants. It is a good plan to stir the surface of the soil in the pots whenever it becomes hard; this is especially beneficial to roses. The addition of a few bits of charcoal to the soil often increases the brilliancy of the flowers, and to some plants powdered bone imparts a more vigorous growth.

To conclude: while plants may live and often bloom with little care, and often in spite of neglect, they will repay well directed care by vigor of growth and profusion of bloom. While their wants are but few, attention to these is essential to their health; and in parlor culture of plants, if they are

worth growing at all, they are well worth the care which is necessary for successful culture.

In a future paper we propose to treat of the plants most suitable for house culture.

Plants in Rooms, are they Healthy or Injurious?

BY A. S. FULLER.

OUR chemists have frequently suggested, if not positively asserted, that plants in living rooms were not promotive of health.

The reciprocal action, known to be going on between the vegatable and animal kingdom, the first taking up and using carbonic acid gas, which is thrown off by the other, would seem to contradict the theories advanced in support of the oft repeated assertion that plants in rooms were injurious to health. If plants are the great purifiers of the atmosphere as admitted by our best chemists, why may they not perform their functions under all conditions when in a healthy growing state. It is said that every green portion of a plant absorbs carbonic acid gas, light decomposing this, the solid portions (carbon) being retained and the oxygen set free for the use of animals. If these chemical operations are of the nature and effect as stated, then plants in living rooms must make the atmosphere purer and better for the use of human beings, than it would be without them. This I believe to be a fact, and the modifications or exception to the general rule, must come under the head of plants exhaling noxious or powerful odors, at certain periods, as for instance when in bloom. The fragrance of the tuberose or Golden Japan lily is delightful to most persons, but to sleep or remain in an atmosphere overcharged with their perfume might prove to be anything but pleasant or healthful.

Then again the odors of flowers have different effect upon different persons, and those which exhilarate one, may depress another; besides, we are very prone to let our likes and dislikes come into play, affecting imagination which in turn becomes realization, the final result being a benefit or injury. Healthy plants do not vitiate the atmosphere, but sickly ones grown in the shade, or poorly ventilated rooms may; hence the importance of selecting for window culture those which are best adapted to the conditions to which they are to be subjected. But there is more danger from adverse consequences in not keeping any plants in our living rooms, than too many, for in addition to their purifying effect upon the atmosphere, they are promoters of cheerfulness which by long odds is the best of all preservers as well as restorers of health. If plants were as injurious to animals as sometimes asserted, the densely wooded regions of country could not be inhabited, but we know the contrary to be the case; hence all theories in regard to the unhealthiness of vegetation either by night or day, come to naught. Of course extremes in luxuriance and sterility must be considered as exceptions to a general rule.

There are no more healthy class of people than our florists, who spend the greater part of their lives in an atmosphere filled with the fragrance of flowers and exhalations of plants, and this to a portion of the year in the close and crowded greenhouses, where vitiated air would be found if anywhere.

On the whole, plants in rooms may be considered decidedly beneficial, especially during winter, when their purifying influence is needed far more than in summer; plants with large flowers and powerful odors may be avoided in rooms occupied by invalids, otherwise selections may be made to suit the taste of the cultivator.

House-Culture of Native Flowers.—A lady of Utica writes to *The Country Gentleman* as follows: "I am glad to find so many wild flowers recommended for the garden. In addition to those mentioned, we have been successful in raising the delicate *Tiarella* and *Mitella*. The leaves are exquisite during the whole season. *Trillium grandiflorum* is one of the finest plants I know for house-culture. When the flower expands it will keep a long time if set in a cool room out of the direct rays of the sun. The largest roots should be selected and treated as bulbs."

Editor's Portfolio.

How Horticulture is Taught in France.

The following (funny to us) notice appears in the French *Revue*, whose editor, M. Carriere, remarks:

"As in former years, our eminent confrere and fellow laborer, M. Verlot, at Grenoble, will give a public and free course of lectures on arboriculture."

Below will be found the notice of Monsieur the Mayor of the city of Grenoble:

"M. Verlott, gardener-in-chief of the city, gives notice that the course on arboriculture, specially applied to fruit trees, will commence on Sunday, the 17th of January, and will be continued up to Thursday, the 4th of March following. He will lecture on Sunday and Thursday of each week, at 11 o'clock in the morning, in one of the halls of the museum of the Jardin des Plantes. Some lessons will also be given every Sunday morning, at 8 o'clock, from the 25th of April to the 6th of June following. After *each theoretical lesson, practical demonstrations in relation thereto will take place*, in the fruit garden of the city."

American Potatoes in France.

M. Vilmorin, the well known seedsman of Paris, having given to Professor Lambin a large number of new vegetables for trial, he furnishes details of his experiences, and gives notice to the following kinds of American Potatoes:

Pomme de terre prolific de Bresee (Bresee's Prolific).—After describing the tuber, he says its taste recalls exactly the flavor of chestnuts. "Also, we don't hesitate to recommend it in a manner quite particular."

La Pomme de terre incomparable (The Peerless).—Very favorable report: "We ought not to hesitate to introduce it into both garden and field culture."

Rose hative (Early Rose).—"We come at last to the variety which has been so much spoken of since last spring. Its extreme vigor, with its abundant productiveness, which is the greatest with which we have ever met, will make it certainly the Queen of Irish potatoes, if the quality leaves nothing to be desired. It concludes by saying that the Early Rose is ten days later than a native kind, *La Marjolin.*

What a Mayor Knows about Potato Bugs.

Some time ago a Belgian official inquired of Mayor Brown, of St. Louis, to know if there was any real probability of the Colorado beetle being transported across the ocean, to become a pest in Europe. The following is an extract from the reply of Mayor Brown:

"Treating your letter, therefore, seriously, I have to state that there never has been a potato bug seen flying about St. Louis, or any other city in the United States or Territories; that the potato bug never has caused any alarm in any city nor in the country—only in certain seasons that seemed to be favorable to the production of them. I am not aware of the potato bug attacking any other vegetable. I consider the fears of the people of Belgium entirely groundless, even if the ravages of the potato bug had been great in any locality the past season, which it was not, and is a matter of no apprehension or comment at the present time in this country."

On receipt of this letter from the hands of H. de Boislieu, they immediately passed an act prohibiting the introduction of American potatoes.

Beecher on Apples.

Rev. Henry Ward Beecher expatiates with true ecclesiastical unction on the manifold uses of the apple in the domain of culinary art. It might take its place on the table as regularly as the potato or the onion, for though "the onion is far more odorous, the apple is far more blessed." It is an admirable sauce for meat, which always craves a piquant acid for relish. When meat is wanting, "a scrap of pork in the frying-pan, with sliced apples, will serve the economic table almost as well as if it had been carved from a beef or cut from a sheep." Mr. Beecher blesses the memory of the unknown inventor of the apple pie. He would fain make a pilgrimage to his grave and rear over it an everlasting mon-

ument. But the juice of the apple he accepts only with discreet reservations. Though banished from its former universal position upon the farmer's table, cider is creeping back again, but it comes in the name of a neighbor, and is called champagne. Whether in one form or another, it is still savory of the orchard; it still brings warmth to chilly veins, and adds to the cheer of many a homely domestic festival. "I cannot," says Mr. Beecher, "as a temperance man, exhort you to make it, but I must say, that if you make it you had better make it good."

Horticultural Hall — Centennial Exposition — Philadelphia, 1876.

We gave recently an illustration of one of the buildings of the great Centennial—the Horticultural Hall. The construction of this building has been provided for by an appropriation of the city of Philadelphia, and is to remain as a permanent ornament to Fairmount Park. The design is in the Mauresque style of architecture of the twelfth century. The principal materials used in construction are iron and glass. The length of the building is 383 feet, width 193 feet, and height to top of lantern 72 feet. The main floor is occupied by the central conservatory, 230 by 80 feet, 55 feet high, surmounted by a lantern 170 feet long by 20 feet wide. At a height of twenty feet from the floor a gallery, five feet wide, extends around the entire conservatory. Connected with the main conservatory will be forcing and propagating houses, refreshment rooms, etc.

Australian Timber Trees.

The Australian gum trees have for some time attracted attention in the United States, especially in California, where they are hardy. The *Queenslander* gives the following list and their values, which we reproduce for the benefit of readers in those localities where they will stand the winter:

The Gums: Blue (*Eucalyptus botryoides*)—Diameter, 30 to 48 inches; height, 70 to 150 feet. Wood used where hardness, toughness and durability are required, as for naves and felloes of wheels. The red and gray gums are much used for fencing, building and plow beams. The spotted gum is used by shipbuilders and wheelwrights.

Iron bark (*Eucalyptus siderophloia*)—Grows all over the open country; diameter, 20 to 30 inches; height, 60 to 80 feet; with a rough, furrowed bark. The hard timber makes good sleepers and bridges. The red mahogany, bloodwood, yellow box and turpentine trees are varieties of the Eucalyptus. The turpentine tree is hard, durable, and difficult to burn. The yellow box is very tough.

Black butt (*Eucalyptus pilularis*)—Grows on ridges; diameter, 24 to 40 inches; height, 60 to 80 feet. A valuable timber for building.

Stringy bark (*Eucalyptus fibrosa*)—Diamter, 18 to 24 inches; height, 40 to 60 feet. Timber much used for flooring and fencing, but inclined to shrink and warp. The Moreton Bay ash, one of the Eucalypti, has a brownish, hard wood. The bark of the lower part of the trunk splits into angular pieces, though elsewhere it falls in thin sheets.

Iron wood (*Heterodendron diversifolium*)—Grows in shrubs; diameter, 4 to 6 inches; height, 10 to 15 feet. Useful for pick handles, shafts, etc., from its toughness.

Tulip wood (*Harpullia pendula*—Diameter, 14 to 24 inches; height, 50 to 60 feet; Cabinet-makers admire it for its firmness, grain and fine markings.

Substitute for Rain.

M. Paraf has, to a certain extent, solved the problem of artificial irrigation, by the discovery of a method of doing without rain. His plan is to apply calcium chloride, which has a powerful affinity for moisture, and absorbs a large quantity from the atmosphere. From actual experiments he has found that it will produce irrigation more efficiently and cheaper than any other artificial method. One application will, he states, produce and retain abundant moisture for three days, when the same amount of water, applied in the ordinary way, would evaporate in an hour. The inventor believes that his way is cheaper than canal irrigation, and that not only by its use two blades of grass will be produced where only one is now, but that it will make it possi-

ble to have fields, meadows, grass and prosperity where now there is nothing but sand and desert waste.

Flowers in the Arctic Regions.

In a recent article on the flora of the Arctic regions the total number of species of flowering plants is given as 762, of which about fifty are exclusively confined to the Arctic regions. A very large proportion of these are found in Scandinavia, south of the Arctic circle, and reappear in the Alps; a few reach the Alpine regions of the mountains of India and Africa, and a few reappear in the extreme south of the southern hemisphere. In a less degree the same thing occurs from north to south on the American continent. Of these 762 species 616 have been observed in Arctic Europe, 233 in Arctic Asia, 364 in Arctic West America, 379 in Arctic East America, and 208 in Arctic Greenland. From the proportions the respective figures for the five different areas bear to the total, it will be seen that nearly all the areas must have a majority of species in common, and that each area has very few species peculiar to itself. In a broad sense, the Arctic vegetation closely resembles the flora of the higher Alps, but there is less brilliancy and variety of color in the flowers, yellow and white largely predominating. The plants assume a dense, tufted habit of growth, and increase mainly by lateral branches, which take root and in their turn produce offsets. It is possible that some or all of them ripen seeds in certain favorable seasons, but the almost total absence of annual plants and the habit of growth of the perennials seem to indicate that this very seldom happens. The four following plants, collected by Dr. Bessel in 82 degrees N. lat., but eight degrees from the North Pole, probably on the east side of Smith's Sound, represent the extreme northern limits of phanerogamic vegetation so far as at present known: *Draba alpina*, *Cerastium apinum*, *Taraxacum clens leonis* var., and *Pourlpina*. With the exception of the first these are also indigenous in Britain. Although there is what botanists term an Antarctic flora, not a single flowering plant has been found within the Antartic circle, and only a very limited number of the lower cryptogams.

The Florida Orange Crop.

From the report of the United States Inspector of Customs at New York we take the following items in regard to the production of oranges in Florida:

In Putnam county the product of the orange crop for the year 1874 was 1,000,000 —an increase of 300,000 over that of 1873. The number of acres in this county occupied by orange groves is 200.

From the best and most trustworthy information that can be obtained, it is believed the product of the orange crop of Florida the last year exceeds 20,000,000, and the increase of orange groves during the same time was at least 25 per cent.

The number of orange groves in the State may be fairly estimated at 1,000 groves, of 100 trees each on an average, besides many more containing from 200 to 7,000 each, and the number of bearing trees will exceed 50,000.

The largest portion of the orange crop of Florida goes to Savannah and Charleston, and from thence by rail to the interior, and by steamers to northern cities. Some portion finds its way to Nashville, Louisville, Cincinnati and other large cities, while steamships to Baltimore, Philadelphia and New York take a large part.

Fruit-Growing in Virginia.

At a meeting of the Virginia Horticultural Society, the past winter, a member said: "Let it be known abroad that the Albermarle pippins, grown in the Piedmont section, have attracted purchasers from New York, who have frequently paid $5 per barrel for them at the orchards; that the Lady apple, shipped from the Valley, has been sold at $20 per barrel in Philadelphia; that $15 per bushel has been obtained in New York for Bartlett pears grown in the tidewater section; that strawberries in the same district have not unfrequently produced the value of $600 to $800 per acre, and the Houghton gooseberry over $500 per acre.

Forests as Affecting Rainfall.

Upon this subject, which has been fruitful of much discussion and many learned dissertations, we find an interesting fact stated in an address on Modern Greece, delivered before the American Geographical Society by Hon. John M. Francis, lately United States Minister to that country. Mr. Francis states that at Athens, and throughout Attica, where hundreds of years ago the country was denuded of its forests, and where the mountains had been laid bare to the very rock from the abrasion of the elements, and the earth washed down into the valleys, almost obliterating the courses of the ancient rivers, the drouth of the hot season is continuous for a period of from four to five months, with scarcely a drop of rain to refresh the parched earth. But in other sections of Greece, as in portions of the Peloponnesus, the island of Eubea, and elsewhere within seventy-five and one hundred miles of the Capital, localities where forests have been preserved and are still carefully protected, no such drouth afflicts the land. The rain is distributed through the different seasons of the year, so that the moisture of the earth is retained and its fertility preserved. Mr. Francis believes this fact to be so important as to need no chemical analysis or scientific disquisition to enforce and illustrate its meaning, and that it demonstrates the utility of forests for the maintenance of an equilibrium of moisture throughout the different seasons of the year. May not our own people, who seemed to be possessed of a passion to practice the butchery of the forests, gather from this a lesson for their own good and the welfare of future generations?

Miscellaneous Plants.

Lapageria alba.—From James Comley were two splendid vases of Gloxinias, new Phlox—Mrs. Veitch—and *Lapageria alba. The Garden* of 1872 speaks of this plant as now being "a beautiful ornament in the conservatory at the Holme, Regent's Park. It is trained first on a trellis against the wall, and then across the house on a strong cord, about four feet from the roof and ten from the ground, the shoots being allowed to hang gracefully down. On the opposite side is a plant of the old or crimson kind, which meets and mingles with the shoots of the white one. The effect of the mixture of the variously colored flowers is, as readily may be supposed, very charming. Their beauty is not fully seen when the plants are trained stiffly against walls or trellises; the shoots should be allowed to hang down freely."

Begonias.—An interesting feature was the collection of new bulbous *Begonias* from James Comley, viz.: *B. Veitchii*, a magnificent species, of very neat growth, the flowers large and of a brilliant vermillion red, very distinct and beautiful; Lothair, deep rose, a fine flower; Gem, bright cream color, the reverse of the petals light pink; Corsair, rosy salmon; Magnet, beautiful light pink, the reverse of the petals deep pink; Mazeppa, very bright, cream color, the reverse of the petals tinged with orange pink. These belong to the handsome flowered, tuberous rooted section, and are very valuable acquisitions.

Retinispora filiforme pendula fol. var., a rare evergreen from Japan, exhibited by William Gray, Jr. This is the first plant that has been exhibited, and no other plant is known in the country. There was also a good display of bouquets, baskets of flowers and cut flowers by various contributors.

Agave schidigera, exhibited by Chas. S. Sargent, had a spike of flowers some six feet high. Curtis' *Botanical Magazine* says: "This remarkable plant was introduced into Europe from Mexico by M. Verschaffelt, of Ghent, in 1861; and as a species, M. Lemaire states that is so very closely allied to *A. filifera* that he was at first disposed to regard it as a variety of that plant." The specimen exhibited was a very handsome one, and is supposed to be the first that has flowered in this country.

Rare Shrubs.—Cut flowers of the following rare shrubs were shown by E. S. Rand, Jr: *Rhodotypus kerroides* and *Exochordia grandiflora;* also, Lilac, Dr. Lindley, the spikes of flowers very large, of a beautiful lav-

ender color, and delightfully fragrant; and Paul's new Scarlet Thorn. The *Gardener's Chronicle* says of the last that it is "much superior to any which had previously come under our notice, in the combined characters of depth of color and doubleness. The blossoms were fully double, and the color of a bright carmine red."

Beautiful Foliage Plant.—Joseph Clark again exhibited a very handsome table design, arranged in excellent taste, and E. S. Rand, Jr., *Tapeinotes Caroliniæ*. The following notice of this plant from *The Garden* for November, 1873, will be of interest to all: "This is one of the most beautiful of all stove flowering and foliage plants, and it deserves to be more generally cultivated than it is. It has also an interesting and melancholy history connected with it, having been discovered and named by the late Emperor Maximilian, an accomplished botanist, who, being struck by the beauty of the plant, named it in honor of his unfortunate consort, Empress Caroline. Its foliage is olive green above, slightly hairy, and shining as if varnished, while below the leaves are vivid purple. It flowers nearly all the year round, and bears blossoms of snowy whiteness, not unlike those of a Gloxinia in shape, but with the mouth curved upwards. It grows very freely in an ordinary plant stove, and delights in a fresh, open, peaty compost, and a humid atmosphere. When not in flower it is highly ornamental on account of its foliage, which has a metallic lustre not found in any gesneraceous plant with which we are acquainted.

Florida Cedar.

The superiority of the wood of the Florida cedar over all other kinds of cedar is well known, and the demand for it in Bavaria, where immense quantities of lead pencils are made, has induced some manufacturers to take up the question of the acclimatization of the tree in that country. Seeds have been sown in the royal forests, and about 5,000 young plants have been grown on one private estate. The cultivation of the tree has been attempted, also, in other parts of Germany.

Copal Tree.

Several seeds taken from the fruit of the copal tree of Zanzibar were planted in the Botanical Museum at Kew, England, where they are now represented by strong, healthy plants. Some of them are six or more inches high, and have six or seven pairs of leaflets. They are the first plants of the kind grown in Europe. Though there is always a steady demand for good copal in England, there can be no doubt that large quantities are still buried beneath African soil. In Loanda extensive deposits are known to exist, but, owing to a superstition among the natives, the resin is not allowed to be touched.

Action of Camphor on Plants.

Professor Vogel, of Munich, has lately published, says Gaglioni, some curious experiments on camphor and its physiological action on plants. In 1798 Benjamin Smith Barton first announced the stimulating action of camphor on vegetable organism. He stated that a tulip, with its stalk dipped in a solution of that substance, withered much later than others kept in common water, and that a yellow Iris that was about to fade was reinvigorated for a few hours by means of camphor. Barton, therefore, came to the conclusion that this drug acts upon plants as a stimulant, much as spirits do on the animal frame. These all but forgotten experiments have lately been resumed by Professor Vogel, who has lately communicated his results to the Academy of Munich. He first prepared a homogeneous solution of camphor, by triturating it with distilled water, and then shaking it up with a larger quantity of the same, and into this he put his plants. Two branches of Syringa (common Silac) in blossom, of equal size and vigor, were selected; one of them was put into common water, the other into the camphorated solution. A remarkable difference was soon noticed. After the lapse of twelve hours the former was already drooping and nearly faded, while the latter was still erect, and apparently as fresh as ever, some of its buds having been opened in the interval, and this healthy condition lasted three days. In another experiment, a bunch

of Lilacs which was nearly dead was put into camphorated water, and revived for a short time. The action of camphor is less powerful on the vine, and scarcely of any effect on the black Alder. The idea now presented itself that this drug might also have action on seeds, and accordingly some of *Sepidium satirum*, or Garden Cress, were subjected to this treatment. They were chosen very old, because in that state their germinating power is much weaker than when they are new. The seeds were placed on blotting paper, in porcelain platters, one portion being wetted with the camphor solution, and another with common water; another piece of blotting paper was laid over each. The germinating power of these seeds is considered not to extend beyond three years, and yet, under the influence of camphor, some of 1869 germinated in the course of twenty-four hours; the others, of 1871, in seven hours; while those exposed to the action of pure water either did not give signs of life, or, at least, very imperfectly. From these and similar experiments it may be concluded that camphor is a valuable agent in horticulture.—*Journal of Horticulture.*

Growth Force in Plants.

A correspondent of the *Country Gentleman* has the following interesting note on growth force in plants:

"Those who have never given the matter much attention, will be surprised at the force which growing plants exert. At a recent meeting at the Academy of Natural Sciences in Philadelphia, Mr. Thomas Meehan exhibited a root of the common Pæony with a stolon of common couch-grass (*Triticum repens*) growing through it from one side to the other. He also stated that he had found potatoes with the stolons of grass growing through them in the same manner. A short time ago, while inspecting a fine asphaltic drive, I noticed that within a diamater of four or five feet there were several spots where repairs had recently been made, and on inquiry as to the cause, was informed that after the drive became hard enough to use, these spots were observed to rise up, and continued to do so until the raised part burst open. On making repairs it was found that the trouble was caused by a few roots of the common plantain, which had not been removed when the asphalt was laid down. As the pavement was hard, and several inches thick, the steady force of growth must have been very great. Near by, a large slate slab, four feet by six, was observed to rise steadily at one end without any corresponding depression at the other. Examination showed a root of plantain growing under the raised end, and supporting the whole weight of the stone.

Captain Henry Simonds, proprietor of the extensive trout ponds in Westport, sends one hundred pounds of trout every week to Willard's Hotel, Washington, and receives the handsome little sum of one hundred and seventy-five dollars in return.

Col. Edward Wilkins, of Kent county, Md., has planted an orchard of fifteen thousand peach trees, all of one variety—the Early Beatrice.

Russia's most fiery demand is for coal. Her product does not exceed 100,000 tons per annum, and this quantity is obtained entirely from one source, which is likely to become exhausted in a very few years.

A New Architectural Book.

A valuable addition to our standard American works on architecture has been made by A. J. Bicknell & Co. of this city, in the publication of a new work, entitled "*Wooden and Brick Buildings, with Details.*"

The work is published in two volumes, and contains full page plates of 160 designs of villas, cottages, stone dwellings and city buildings, of very superior style of art. Designs vary in cost from $1,000 upward, and many of them are very elaborate. Contributions from no less than forty-four architects appear in its pages, and from this can be formed a good opinion of the great variety of designs illustrated. It is a model volume, and the best yet issued by the firm. Bound in superb style. Price, $18.

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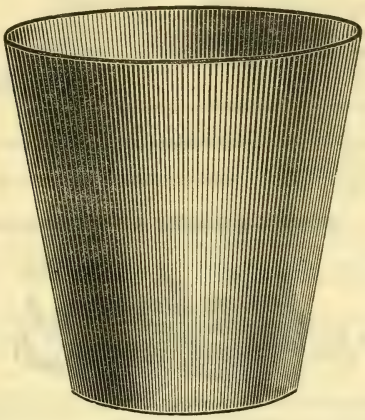


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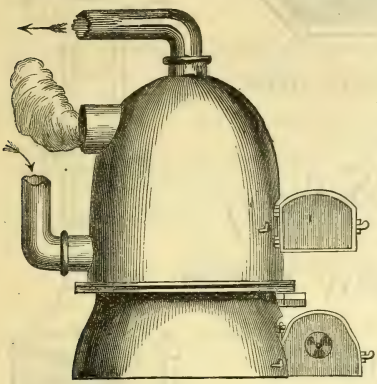


Fig. 1

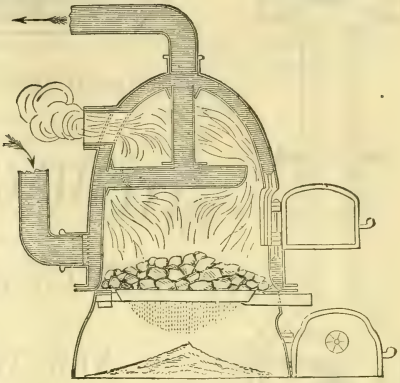


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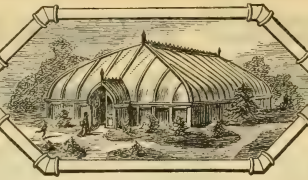
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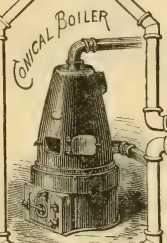


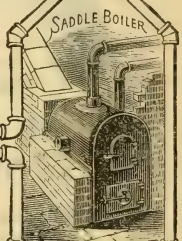
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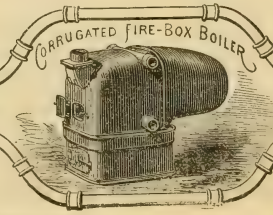
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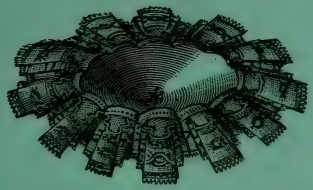
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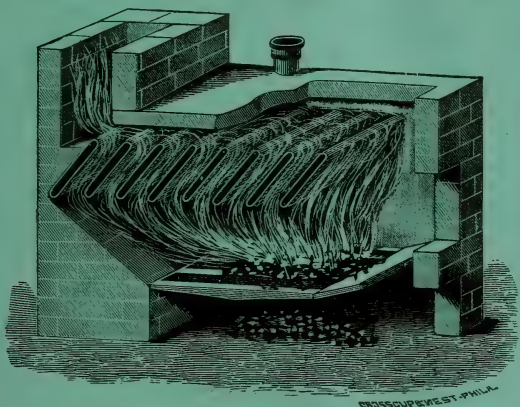
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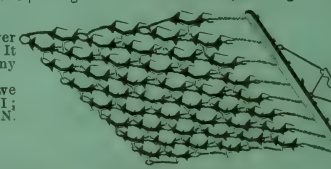
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VOL. 30. AUGUST, 1875. NO. 350.

Special Contributions.

Horticultural Exhibitions.

As we are now enjoying a breathing spell after the campaign of last year's shows, and as this is the particular season when the various committees, having the matter in charge, are preparing their schedules for another year, a few words of advice may not be deemed out of place to such as these.

It has long been a disputed point whether discussional meetings, or exhibitions of horticultural productions, were the more useful in disseminating knowledge that would assist in raising the science—or practice, rather, if the latter term is preferred—to a higher standard.

Setting aside the utility of the question, there can be but one voice as to the popularity of the exhibitions; as the discussional meetings are in a great measure confined to a comparatively few speakers, who relate their experience for the benefit of others.

This being the case, and in view of the fact that there are hundreds of people who visit our horticultural shows that could not be persuaded to attend the conventions, it behooves us to introduce every idea that tends towards improving the system. It has been advanced, and not without some reason, that the majority of our premium lists are composed to suit the collections of the wealthy, whilst militating against the poor man's mite. No better system has ever been inaugurated to counteract this complaint than the so-called working-men's shows in various places throughout England, where special prizes are awarded for small collections, and special objects of growth, deposited by the owners of little cottage-gardens.

There is no plausible reason why this very plan should not be introduced into this country, and inaugurated by all of our societies. Especially in our large cities is the complaint most frequent, and made with the greatest show of justice. Whilst awarding all credit to the wealthy leaders of horticultural superiority, and our exhibitions would indeed be poor without their contributions, still how seldom do we notice the single pot of Geranium or Fuchsia, grown perhaps in the sunny

window of the modest cottage; or the plate of onions or beets, grown in the little back garden, the owners *chef d'œuvre*, upon which he or she has bestowed many a leisure moment.

We do not make these suggestions in a fault-finding spirit, but rather to popularize our societies by gathering in all who feel an interest in the subject, be they rich or poor. Nowhere in the world is this question better understood, and more perfectly met, than in England, where it is a rare occurrence to find wealthy citizens not taking an active part in the progress of horticulture in all its branches; where men, trained from infancy to old age, compete side by side with the market gardener, even in the most modest acceptation of the term. Horticulture is, beyond a doubt, one of the most powerful aids in solving the great social problem of the day. It has done more to level false barriers, based upon wealth alone,—more to create a genial, true fellow-feeling among persons of kindred tastes,—and more to build up a spirit of contentment and self-respect than any other pursuit of which we have any knowledge.

Reform is likewise needed in the distribution of the amount appropriated for prizes. In forming premium lists, great care should be taken that the whole available sum be not offered for a few leading articles, to the detriment of dozens of others that really deserve quite as much assistance as the few favored kinds.

Our remarks are intended to apply more especially to the wholesale manner of offering premiums for collections, rather than special articles embraced therein. True, a few genera of plants are annually complimented in this way; but there are dozens of genera, that we all delight to grow, which are rarely ever mentioned in the schedules.

For instance, in the place of offering a large prize for the *largest and best* collection of greenhouse plants, let the amount designated be distributed among the plants that usually go to make up the collections somewhat as follows:

After offering prizes for the best three or six specimens each of all the leading genera of greenhouse plants that are usually grown for exhibition purposes, then finish the list by a premium for best set of plants not comprised in the preceding. Also, one might be added to encourage the introduction of new plants never before shown. Now how much better would be such an arrangement,—the distribution of the appropriated funds among many competitors, than for one or two to receive it under the general heading of best collection.

After all, it is not so much the exact amount of money gained, as it is the accompanying feeling that prompts one to greater exertions in the future. A gardener may not feel competent to compete for the large collection that comprises rare old specimens, when he might feel assured of success in the special prize for some individual class of plants, requiring but a single season to prepare.

The encouragement offered for growing annuals seems to be insufficient. With the exception, probably, of one of our oldest societies, this is a point which is greatly neglected; and yet there is no class of plants so deservedly popular, nor one which needs more encouragement. How is this to be effected without the co-operation of societies inaugurated for the purpose of encouraging such as these?

Seedsmen's catalogues, praiseworthy as they all are, may be doing a good work in their way, but people desire to see the flowers themselves; and having once made their acquaintance, the next step is to possess them. Descriptions avail but little in comparison with the reality.

It is not sufficient to offer a premium for the best collection; this is entirely too sweeping. We must have special prizes for the best set of Asters, Ten-week's-stocks, Cockscombs, Phlox Drummondii, Portulaccas, and other leading kinds. By thus particularizing certain genera of plants or flowers we succeed in introducing the improved forms to notice.

And in a great measure this is true of the popular class of bedding plants. We must have in these specific mention made of the chief kinds in use, in the place of generalization, as is too much practiced of late.

One more point in respect to premium lists, and we will quit the subject. In studying the prominent features of all successful associations, and we now allude to those whose success is assured, in the old world, we find there is a strong inclination to prohibit any article from appearing on the tables that is not fully up to the standard. Contributors are not expected to be the best judges of their own articles; and in many instances persons of taste allow their judgments to be warped by personal prejudice when exhibiting fruits and flowers, that, did they belong to others, would be ruled out by these very parties. These expressions of opinion may sound harsh, but we believe them to be true, and therefore call attention to the fact purely for the good of the cause. Once form an undeviating rule, that all inferior fruits, plants and flowers shall not appear upon our tables, and we believe the show will be far more popular, as we know it will be far superior to those ordinarily held.

Cultivation of the Azalea Indica,

With special reference to the Production of New Varieties.

Read before Massachusetts Horticultural Society

BY MARSHALL P. WILDER.

IT is only about thirty years since much attention has been given to the production of new varieties of the azalea. But those originated within the last twenty years may now be numbered by thousands; one of my friends in Belgium having produced more than six hundred named kinds. Belgium, Germany and England have given more attention to the production of new varieties than all the rest of the world. And never before has there been more interest or enterprise in this line of cultivation. Every year brings up something desirable; and now that the Japan azaleas (*A. mollis*) are coming to our aid, we may expect even finer results than before. It is quite probable that by the intermixture of the Chinese and this new hardy species we may obtain varieties with persistent foliage. These Japan varieties are believed to be hardy; a plant in the Cambridge Botanic Garden, which came from Japan seed, having stood entirely uninjured for several years without protection. The Chinese varieties are easily crossed by the pollen of the Japan sorts, and I have now a pan of young plants just coming up, which are the result of hybridizations made last spring, between *Azalea Indica* and *A. mollis*.

New varieties are raised by the cross-fertilization of flowers, which produce an abundance of seed. The seed vegetates freely, and with good care will produce fine little plants that in two or three years may be made to bloom, and thus give us early the results of our efforts. The plants which I hold in my hands [Mr. Wilder here exhibited two seedlings which were acknowledged by all to be of remarkable size for their age], are the results of seed produced by the Souvenir de Prince Albert impregnated with the pollen of various other kinds. The seed was sown last winter, and came up in March or April. These plants, as they stand, measure more than a foot in height, and I expect to have them in flower next year. To accomplish this I shall either take off the tops and graft them into strong stocks, or, what is more sure, inarch the tops on to strong stocks. The process of grafting may be either by split grafting or by a side graft; but in these cases the plants should be laid on their sides in a close frame and in very mild heat; or they can be worked by standing the stock upright and slipping over the whole a common glass lamp chimney, stuffing the top with cotton, so as to keep the air close and the graft fresh until a union has taken place, and the graft begins to grow. This is called the "stifled graft," and was introduced some thirty-five years since by the Chevalier Soulange Bodin, for the propagation of camellias, azaleas, and other hard wooded plants. The *Azalea Phœnicea* has been found to be one of the very best for stocks.

Cuttings are made of half-ripened wood, cut smoothly, just below a leaf bud. They may be planted in pans or pots, very thoroughly drained with broken pots, on which

should be a covering of moss, cut hay, or spent hops from the brewery, which I have found to be most excellent for drainage. For soil we use two-thirds peat and one-third fine white sand; but they will do equally well in sand alone. As regards temperature, cuttings of the azalea will root in a shady, cool place in the greenhouse. This is, however, a slow process, and the better way is to cover the pots with bell glasses, or, which is still better, to place them in a bed with a mild heat. In this way cuttings root very freely, and in two years, with good care, will make pretty blooming plants.

In the production of new varieties, if you desire white varieties, use white sorts to cross with; if red, then use red; if variegated sorts are desired then impregnate with the pollen of striped or spotted sorts. For this purpose I use a small camel's hair pencil, which I have always in my pocket, taking the pollen from one flower and transferring it to another. The proper time to impregnate the azalea is about three days after the flower is open. At this time the stigma will be developed, and in such a state as to receive the pollen readily and before the stigma becomes too glutinous.

But we desire to go farther than merely obtaining beautiful varieties, and to make the azalea hardy, so as to stand the open air like the deciduous species; and this I deem quite probable by the varieties which we shall obtain from the crosses of the Japan species. The *Azalea Indica alba* is nearly hardy in England, and has stood in some places for many years without protection. A cross with this and the Japan species would give hopes of success.

Although I have spoken of hybridization as the means of producing new varieties, no plant is more given to what is called sporting than the azalea. Some of the very best varieties we have owe their origin to a freak of nature; that is, to flowers which have departed from the natural type and given flowers of other colors. To these we have given the name of sports. They are perpetuated by grafting from the sporting branch, as I have described in my lecture on hybridization, published in the Transactions of the Society for 1872.

The seed is gathered in October or November, and kept until January, when it is sown in shallow pans in two-thirds peat and one-third fine sand. When the young plants have attained to the height of two inches, they should be potted off in thumb pots, and placed in a bed of tan or similar substance, where the bottom of the pot will not dry suddenly, near the glass in the shady part of a pit or greenhouse. These pots, as well as those afterwards used, should be most thoroughly drained.

In the treatment of established plants I have drained with potsherds, with a covering of cut hay, moss, or spent hops from the brewery, so that the plants might take a full supply of water without the earth becoming sodden and sour. The plants should at all times have a regular supply of water, especially when in flower and while making their growth. I have found that it is well to keep them in the greenhouse until the weather becomes warm outside, so that they may ripen their wood thoroughly. They should then be removed to a cool, shady place, or, if allowed to receive the sun in the middle of the day, they should be plunged in some substance, so as to prevent the roots from becoming injured by the heat of the sun on the pots. Mr. Hunnewell's method is to pile soil around each separate pot, and I have never seen any azaleas in better condition than his. The best season for potting is immediately after the plants have made their growth in the spring, and the best soil is three parts fine old peat and one part fine sand. The azalea may be forced early, and a succession of flowers may be had from December to May, if kept in a cool house until wanted for forcing.

Nothing in the line of ornamental plants under glass can surpass the gorgeousness of the azalea, with its rich and varied colors, and it is not probable or perhaps possible that any plant will ever exceed it in beauty. A large conservatory of these plants, when in full bloom, may be truly described as effulgent with beauty and glory.

The Greenhouse.

Greenhouse for August.

IF any repairs are required in these structures, it should be seen to at once, such as painting and repairing broken glass. Heating apparatus should be examined and put in thorough order for the next winter. If a hot water boiler is employed, the soot should be thoroughly cleaned from every part. An accumulation of soot not only prevents a proper action of the fire, but is also dangerous in causing fires. This, we have no doubt, is a frequent cause of burning greenhouses every year, especially where the old-fashioned smoke-flue is employed. All is satisfactory until some extra cold, windy night. Then the heat is found insufficient, the fire is pushed, and the flue becomes extra hot; the soot is ignited, and the flue bursts from the extra heat, and scatters destruction among the plants, if it does not set the house on fire. But the staging and benches being generally of wood, which becomes as dry as tinder, it requires but little to ignite, and the house and plants are destroyed in a very short time. This is no fancy sketch; we have complaints of such things every winter.

Any alterations or repairs to boilers and pipes should be seen to at once. It is less trouble when the house is comparatively empty, and everything is in working order when required. Any heating apparatus found necessary to improve or replace after the experience of last winter, must not be neglected. If all was found satisfactory last winter, it was a thorough test.

Soils.—Now is the best time to lay in a supply for the next season's use, for it is generally dry and in good condition for storing away. It is a mistake to obtain soil, and mix and turn it over several times out of doors, until all the fibre is decayed. This process is much better performed by the plants, and the full benefit of fresh soil obtained; but in the former instance, half the benefit of fresh soil is lost, and it is soured before using. Any good turf from an old pasture is best for general potting; but if this is not obtainable, there is usually some to be found by the side of roads, and on the sites of new buildings. Any place where grass grows short and thick may be usually depended upon as a good soil for pot plants.

Peat is indispensable where a general collection of plants are cultivated, although all the common flowering plants do not require it. Many plants can be grown better in a good loam than in peat; but we are obliged to employ a portion of peat for many plants for which we should prefer a good loam, if it was obtainable in this district; for example, in growing camellias and many species of palms; but for most species of orchids, peat is the best. But when we mention peat, we do not refer to the black, soapy substance found in bogs, but the top soil, in which ferns, and vaccariums, and such like plants grow wild. This is chiefly composed of the living roots of such plants, with usually a mixture of white sand. If this is obtained dry, and stored in a shed, the fibre is nearly as tough a year after as when fresh cut. In Europe, a large quantity of leaf soil is used for growing pot plants. This is composed of the decayed leaves of such trees as oak and beech; evergreen leaves are useless. But such soil is of little use in this country, for it becomes too dry, and when dry, it is not easy to moisten. In place of leaf soil, it is best to add thoroughly decayed manure, if the soil is too stiff, and also some coarse sand. This can be usually obtained from water courses, if no pit-sand is found in the district. We can obtain plenty of the best quality close at hand. The mixture we employ for all our soft-wooded plants is simply two parts fresh loam and one part fresh horse manure from the car stables, mixed together and stored under sheds when dry, at this season. We add more or less sand, according to circumstances, when used.

It has been a very poor season for starting subtropical plants out of doors. Dry, bright days and cold nights have been the rule, with quite sharp frosts the middle of June, which in some instances not only pinched tender flow-

ers and vegetables, but blackened the young growth on oak and hickory trees. Such plants as pensas have the foliage much punished, but being fast-growing plants, will soon recover, but looked very shabby for a time. Cannas, although not growing fast, will no doubt be as fine as usual in the autumn. Several of the new varieties were in flower the third week in June, and both flowers and foliage being fine, prove them very valuable additions to this useful class of plants.

Orchids will now be growing freely, and will require abundance of moisture in the atmosphere, and also to the roots. Blocks will require syringing several times on hot days; and the plants well syringed over the foliage each afternoon, keep the plants free from dust and insects. The principal plants in flower will be Cypripedium Roezlii, Miltonias, a few late Cattleyas, such as Leopoldii and Schilleriana, Odontoglossum Grenberghia, and the lovely scarlet Disa grandiflora. This last should be in every collection, for the best place to grow it is in the coldest part of the camellia house; and as it requires no special treatment, except abundance of water at all times, it is very easily grown. The Dove plant will be also in flower. This is one of the orchids which is always inquired for by the ladies. A few of these flowers are a great addition to a wedding bouquet. Many of the Stanhopeas will be in flower at this season, and although the flowers do not last long, are very showy, and give the plant a strange appearance from growing through the bottom of the basket. Aerides and Vandas will be growing fast after flowering. Must be kept hot and moist, and not allowed any bright sunshine.

Ferns and Selaginellas will be growing fast, and will require abundance of water at this season. Do not allow draughts of dry wind directly on the foliage. Frequently, in very hot, dry weather, it is best to reduce the quantity of air admitted during the day, and increase it at night. The air is usually moist at that time, but in the day-time it dries all the moisture out of the houses, in spite of continual sprinkling the floors with water. Many hot-house ferns will grow better in a shady greenhouse during the summer months, the growth being stiffer and a better color. Of course the only difference usually at this season in the various houses is the amount of ventilation given, the dry, hot air being best excluded from some plants as far as possible. Be careful to keep plants of Adiantum, especially Farleyense, from draughts; the foliage is soon injured, and also by neglect of shading. We seldom water ferns over the foliage; it spoils the foliage of such varieties as Gymnogramas, Pteris tricolor and Chelianthus, and in dull weather often decays the leaves of other tender, dense-growing varieties. Enough moisture can be caused by watering floors and stages.

Marantas and Alocasias.—Any pot-bound plants requiring a shift should have it at once, for it is best to have the pots well filled with roots before autumn. Shade from bright sun, and see that red spider does not establish itself, or the foliage will soon be spoiled. These plants are very useful for autumn decoration, especially in the shape of small plants for glass cases, in which the colors are usually extra brilliant.

Caladiums will now be at their best, and will require abundance of water, with good syringing over the foliage on bright afternoons. Mark and select the best varieties according to taste; for although it is necessary for the trade to grow a large number of varieties, two or three dozen sorts is usually enough for the private grower, and will give all the most distinct varieties. It would be well also to mark those sorts which grow best out of doors, for they vary in different soils and localities. We expect the new Alocasia Gibsonii will be a useful variety for outside planting, and the black foliage will give a new feature in subtropical gardening, and would not be entirely out of place, mixed with lighter plants for cemetery decoration.

Palms will now be in full growth and beauty, and must have abundance of water, both at the roots and overhead. There are no cultivated plants which require more water than these, if fine growth and good health is

expected. The Latania Borbonica is one of the best plants for furnishing vases for outside decoration. It is very handsome; the wind does not affect it; it is easily grown, and the plants are cheap. In purchasing palms, unless plants are required for immediate effect, we would advise our readers to obtain moderate-sized plants; for unless it is any rare or scarce variety, young plants are comparatively cheap, and growers have the pleasure of seeing the gradual development of their beauty. Some specimens are often infested with a small white scale. This is easily removed if taken as soon as a few are noticed; but it spreads very fast, and if allowed to go on unchecked, soon spreads over the entire plant, and requires much time and patience to remove. We often find it on small imported plants; and as there are usually a few left in the axils of the leaves, a fresh crop make their appearance with each new growth. But if taken before the leaf unfolds, a minute or two will clean it away. The prickly species, such as Calamus and Dæmonorops, are the most trouble in this respect; and it may also be noted that those species furnished with spines always require a strong heat at all seasons, and are not adapted for outside decoration.

Greenhouse Rhododendrons should receive more attention than they have so far had in this country. They are very handsome, much more so than the average so-called hardy varieties, which, in many instances last winter, were proved not at all hardy—a fact which the numerous deaths will prove. All the Arborium varieties will grow and flower well in the coolest house, if furnished with plenty of water and room to develop, and they make a grand show during winter and early spring months. We had our attention called to this by a recent notice of the beauty of these plants in an English gardening periodical, in which it stated the Arborium varieties were in full flower out of doors in North Staffordshire, when the plants were covered with snow. We recollect this extraordinary sight about twenty years ago. There was a heavy fall of snow late in the season, and the bright flowers were standing out from the snowy covering. But with these outside plants the full beauty of the flowers was only seen in a favorable season, the spring frost usually spoiling them before fully open; but when grown in a cool house, the flowers were grand each year—a fact demonstrated in another garden in the district. We are aware that some of the varieties grow too large for small houses; but Jasminaflora and its hybrids, and also the Javanicum hybrids, as well as the Gibsonii class, are very moderate growers, and flower when quite small—another advantage of these dwarf varieties. Many of them strike freely from cuttings, so that the time and trouble of providing stocks for grafting is not required; but most of this class require more heat than the Arborium varieties, as a slight freezing would be probably fatal to them, while Arborium would not be injured by quite a hard frost.

Azaleas.—Plants required for very early flowering may be placed out of doors for a short time, if watering is well attended to. Those which are required to make a second growth must have plenty of heat and moisture, with slight shade from bright sun. Young plants must receive the same treatment; for if they become stunted while small, they seldom make satisfactory plants, and frequently die off suddenly.

Camellias must be kept as cool as possible, or they will start a second growth, which does not flower, and would rot the flowering shoots. Keep the plants well supplied with water, and the foliage clean.

Vallota purpurea will now be in flower, and should be placed in the coolest position, to prolong the flowering season. If the plants are much pot-bound, it is a good plan to stand the pots in pans of water. These plants require large quantities of water, and it must be remembered that the plants are evergreen, and must not be dried off enough to destroy the foliage.

Calla Lilies will now require shaking clean out of the old soil, and potting into clean pots. A good, stiff loam, nearly approaching to a clay, with a thick, good, rotten manure, will grow these plants well. We stand the

plants out in full sun, and give little water, until they are rooting freely, and bring them inside before danger from frost. By this treatment we have fine flowers all the winter.

Bouvardias, Carnations and other winter-flowering plants which are planted out, must be kept free from weeds by frequently stirring the soil with the hoe. This, also, in a measure prevents the plants suffering from the dry, hot weather we usually experience at this season.

Poinsettias and Euphorbia Jacquiniflora must be shifted into their flowering pots, to insure the pots being well filled with roots before winter. This should not be delayed after this month. Give the plants plenty of light and air if indoors, and if outside, protect from rough winds, and water frequently when pots are well filled with roots.

Stevias and other plants plunged out of doors must be turned round once each week, to prevent the roots rambling.

Primulas must be kept as cool as possible, and watered with care. The double white will require shifting into the flowering pots by the end of the month.

Bulbs for early forcing must be obtained and potted as early as possible, or the pots will not be filled with roots when required for blooming. These are best plunged overhead in coal ashes.

Mignonette.—Sow some in pots for winter-blooming, and place in a shady position. Thin out the plants when up, to about six in a six-inch pot.

Bedding-out Plants.

FROM a valuable paper, read by Mr. John Feast at a meeting of the Maryland Horticultural Society, we make the following extracts:

The demand for bedding plants has so much increased, that where the grounds are extended, it requires thousands to satisfy the requirements. These plants are not now confined, as formerly, to verbenas and others of a similar character, but all plants which flower during the season, and which can be used for decoration; besides, also, what are termed foliage plants, which add greatly to the beauty of grounds when properly arranged by the hands of a skillful and experienced person. Indeed, this branch has become so popular that many florists raise few other plants, losing all interest in plants which are rare at this time, save where there is a natural love for plants.

The taste for new plants has revived of late, and will, in a few years, increase the number of bedding-out plants. Of those plants now in cultivation, which, if properly planted in clumps, or as single specimens, have a fine effect, I will enumerate a few that give that oriental style so much appreciated.

Grounds may have fine specimen trees or choice evergreens, and still want something to relieve the prevailing monotony. A diversity of foliage, properly dispersed, should be aimed at to give effect, and plant, in addition, such genera as Bananas, Alocasias, Dracænas, Arums, Agaves and Yuccas. Caladiums also make fine bedding-out plants, contrasted with Zepharanthus alba, which gives a profusion of bloom, its white liliaceous flowers lasting some time. The pampas grass, with its tall reeds and flowers of a silvery cast waving in the wind, is quite ornamental, as is also the Erianthus Ravennæ, another tall-growing grass.

The Panicum bambusa and Zea Japonica, or striped maize, also produce good effects.

Then we have the Erythrina, or coral plant, with its large scarlet papilionaceous flowers, continuing in bloom till frost, when the roots may be taken up and put away like dahlias, than which planted out deserves more attention for decorative purposes. The Hibiscus Sinensis of varieties form a fine class of plants, flowering during the summer and autumn. The much-neglected Oleander with its varieties is one of the most abundant flowering plants in cultivation, and one which, though common, holds its position with most hard-wooded plants.

Many foliage plants have a pretty effect when skillfully planted, so as to blend the different colors artistically. This ribboning system practiced on a large scale I have observed at the Crystal Palace at Sydenham, where the

effect is fine; yet I may state that I have seen bedding out even on a much larger scale at Erfurt in Prussia, where from 50 to 100 acres are planted out, the seed being raised for exportation. As far as the eye can distinguish, the different colors are separate, each covering a large space of ground, and producing an effect beyond description.

Azaleas and Rhododendrons. — In March were exhibited some choice and new varieties of the Azalea. The handsomely trained standard Azalea from J. B. Moore, named *Decora*, very deservedly received the highest praise of all. The luxuriant foliage formed a fine relief to the large number of flowers, and made it an object of more than usual attraction. Particularly noticeable, also, was a small plant of Azalea Francois De Taye, which Van Houtte says is one of the finest in cultivation. A fine plant of *Rhododendron Veitchianum lævigatum* was shown, which will grow freely in a warm greenhouse, and bloom for a long time; the flowers are clear waxy, and valuable for all kinds of floral decorations. This very fine variety was shown for the first time. Three fine varieties of Azaleas were shown by Marshall P. Wilder: Roi Leopold, orange color, spotted with amaranth, the flowers being of fine form; Hermann Seidel, with double flowers, of a bright rose color, and Jean Van Geert, of bright, glossy rose color; also, *Azalea mollis*, one of a new, hardy species from Japan, of which Van Houtte says: "It is quite a novel tribe, beautiful habit, large foliage, first-rate flowers, of all hues, in red, white, yellow, primrose and flesh colored tints. These flowers, of perfect form and as large as those of hardy rhododendrons, are most brilliant." The varieties shown were Isabelle Van Houtte, flowers very large, beautiful dark nankeen, spotted with orange; Madame Camille Van Langenhone, snow white, some of the flowers barred with salmon, others striped with light rose and carmine, a very beautiful and effective variety; *Céuti striatella*, a fine, free flowering kind; and *Nonpareil*, white, ribboned with rose, a splendid variety.

Cyclamens.—At a winter meeting were exhibited some magnificent Cyclamens from Jas. O'Brien and C. B. Gardiner, which were the admiration of all. The elegant form and varied colors and markings of the Cyclamen, and the freedom with which the flowers are produced, with the length of time which they continue in great beauty and freshness, are all valuable qualities. The foliage, too, is very ornamental; especially so were some of these plants, the center of the leaves being beautifully marbled, with the edges green, the marking being very uniform. The flower spikes, with their pretty pink flowers raised well above the foliage, and the abundant bloom, some of the plants having each at least one hundred and fifty buds and blossoms, made them objects of great beauty. A pink-flowered one from Mr. O'Brien was especially noticeable, it being of a dwarfer habit than they usually are, of a very symmetrical growth and handsomely flowered.

New Pelargonium Queen Victoria.— Mr. John Saul, in his catalogue for 1875, gives a very showy colored plate of the new Pelargonium "Queen Victoria," and describes it in the following terms:

To say that this is handsome conveys but an inadequate idea of it, for it is the most marvellously beautiful and novel variety ever offered.

The flowers have peculiarly crispy petals; they are not really double, but from their fullness of form and extra number of petals have the appearance of being so. The color is a rich vermilion, all the petals broadly margined with pure white, and the upper ones blotched with maroon. The contrast of the broad white margin with the vermilion ground color makes the flower extremely pleasing and attractive.

The Finest Wistaria.—At the corner of Second ave. and Seventh st., New York, may be seen the largest Wistaria in America. It covers a space 160 feet long and 70 feet high, and has borne in one season no less than 60,000 blossoms upon it.

Garden Gossip.

Garden Notes.

BY JOSIAH HOOPES.

DIRECTIONS are given in *The Journal of Horticulture*, London, for forming neat little miniature trees in pots, especial reference being made to two of the most deserving plants for this treatment. The very pretty ivy-leaved geranium, "*L'Elegante*," may be trained to a neat little umbrella-shaped trellis, which, during the season, it will completely cover with its distinctly variegated foliage. To intensify the color of the latter, the stem may be slightly cut in places, and then exposed to the sun. Another novel specimen may be formed by grafting a shoot of the *Iresine Lindeni* upon the variegated form of the old *I. Verschaffelti*, allowing a few shoots from the latter to grow up and encircle the former. The grafting process is readily performed on this class of plants, and is very effective. If a young plant of the golden-leaved thyme is carefully grown, and the side shoots near the base cut off, one may soon form an attractive little tree, which will be not unlike the celebrated dwarf plants so common among Japanese gardeners, and, indeed, far more natural and handsome. Such experiments add a zest to gardening operations entirely unknown to those who content themselves with the old orthodox methods of their teachers.

THE Silver Thorn, known to botanists as *Elœagnus parviflora* has been tested at the North as a hedge-plant, and great hopes are entertained of its future usefulness for this purpose. We understand that it has been planted quite extensively at various places in the South with equally gratifying success, especially in portions of Louisiana. It is not furnished with thorns, as is the Osage Orange, but the terminal point of each shoot is sharp, and at maturity becomes as hard as a bone; the trimming process tends materially to increase the number of small twigs, each one of of which is usually armed so that no animal appears willing to come into close contact with an old hedge. The plant has many good qualities to recommend it, such as hardiness, beauty of foliage, immunity from blight and other forms of disease, as well as freedom from injurious insects, so far. Persons desiring to grow it themselves should put out a few young trees for fruiting purposes, as it seeds freely, and the berries, by the way, are exceedingly ornamental as well as the foliage.

A CORRESPONDENT says he "accidentally blundered upon an excellent plan to make his trees produce fruit." It was to twist a stout string very tightly around the limbs, and thereby stop the circulation. This is merely one way of utilizing the well-known principle that vegetation when checked by any method induces fruitfulness. Our friend, however, had better select some other system, as, for instance, pinching back the luxuriant shoots during summer, rather than seriously injure his trees by strangulation. His remedy calls to mind the old-time "gentlemen of the road" who obtained a livelihood by grasping unsuspecting travelers by the throat, exclaiming "Your money or your life." The immediate reward was in most cases sure, but the effect in the end was generally disastrous.

A COMMON complaint among amateur florists is the bad condition of the pot soil in which their pets are growing. This is not infrequently caused by the ordinary angleworm which so perforates it and changes its character as to seriously injure the plants. The usual intimation of their presence is the formation of heaps of "casts" on the surface, and if the plant is inverted and the rim of the pot gently tapped against the edge of a table, the ball of earth will come out intact, and the worm, if present, is readily found. A writer in *The Garden*, London, sprinkles soot over the drainage in the bottom of his pots to prevent the worms from entering; he also recommends mixing a little soot with the soil in potting to kill the young, and as soot is a good fertilizer two objects are secured. When worms are very bad in the soil, it is, perhaps, the most advisable plan to dip the ball in clear lime water, which will penetrate into the excava-

tions and cause the inmates to come to the surface, where they are sure to die quickly.

THE *Gardeners' Chronicle*, London, mentions some of the finest specimens of evergreens to be found at Dropmore, that rarest of rare collections. Among the most conspicuous is the Deodar cedar, from the Himalayas, planted in 1834, and now 60 feet high with a trunk 9 feet 7 inches in circumference 3 feet from the ground. A Douglas fir from our far Western country, grown from seed planted in 1827 or 1828, now measures 106 feet in height, thus rivaling the best natives in Colorado. The Chili pine, a noble plant, is here 60 feet high, and if this very curious species to which has been applied the title of "monkey puzzle," can be called beautiful, then is this venerable specimen worthy of that adjective. The three species named are all unreliable in our Northern States, but in the more temperate climate of the South they should receive the attention to which their merits entitle them.

A WELL-KNOWN London florist is sending out this season some charming new annuals. *Romneya Coulteri* belongs to the poppy family, and is one of the most showy of this great natural order. It forms a large branching plant and produces pure white, fragrant flowers, five or six inches in diameter. *Erythræa Muhlenbergii* is a beautiful little Alpine plant, somewhat in the way of the gentians. It grows from 12 to 18 inches in height, with terminal clusters of bright rose-colored flowers. For rockwork it will prove a welcome addition to our list, and as it is more easily grown than the gentians, it may partially take the place of the latter.

WHOEVER is fortunate enough to possess what our English friends term "a bit of water," has an effective element of beauty which the larger portion of our finer places lack. Many a "pond-hole" or streamlet, looked upon as a nuisance by its owner, might with a little good taste be transformed into an attractive feature. We need not go beyond our own native flora to find the necessary material for decorating the margin of water, or for forming what has been very properly termed the "bog garden." In the water itself may be grown with little trouble the *Nymphæa odorata*, which will abundantly repay us with its wealth of deliciously fragrant white flowers. Along the borders where the soil is wet the Side-Saddle Flower, or *Sarracenia purpurea*, will always prove an attractive object, with its broadly-winged pitcher-shaped leaves, and dark purple blooms. The rare *Helonias bullata*, with its smooth, bright green foliage, and purple flowers, arranged in a dense raceme on a stem one or two feet high, is very beautiful. Even the common Arrow Head (*Sagittaria variabilis*), with its many unique and attractive forms, is an excellent plant for the bog garden, thriving with very little care. These are only a few of the many interesting and valuable aquatic and sub-aquatic plants to be found in moist situations.

READERS who are fond of novelties in ornamental trees will be anxious to have a sight of some of the recent "sports" from the birch family. One of the most pleasing weeping trees is grown in England by Mr. Young, of Godalming. When grafted or inarched on a high stem the slender branchlets droop entirely to the ground and form a natural arbor in which one may rest from the noonday sun as comfortably as in an expensive artificial structure. A recent number of the *Revue Horticole* contains an illustration and description of a French variety that "weeps" yet more perfectly, although perhaps with less grace. It is said that in this sport the branches hang down almost parallel to the stem and are devoid of the usual rounded top so prevalent in other weepers. There are two new forms of the birch, probably chance sports from the White Birch of Europe, which are decked with quite handsome purple leaves; one of these is as deep in hue as the well-known Blood-leaved beech, and will be likely to prove quite popular here. We are not aware, however, of its introduction into this country. Another curious novelty in the birches is a variety with an upright columnar growth, reminding one of a Lombardy poplar. This will probably be welcome only to those among us who are curious in such matters.

The Flower Garden.

New Roses of 1875.

A WRITER in the *Gardeners'* (English) *Magazine* gives the names and descriptions of the roses of 1875, as follows:

Tea-scented Varieties.

Aline Sisley (Guillot).—Deep purple-rose, shaded violet-red; large, full, well-formed; awarded a gold medal at the Lyons exhibition in 1874, a distinction it appears to well deserve.

Jean Ducher (Madame Ducher).—Color yellow, shaded salmon and red in the center; very good grower; fine foliage, flowers large and full; very fine.

Duchess of Edinburgh (Veitch & Son).—The color of this rose is a very rich, deep, glowing, velvety crimson, very bright; in the way of the rose Duke of Edinburgh; large, full, and good form. The fragrance is like Marechal Niel; a novel color in the tea-scented section; has obtained a first-class certificate of merit at South Kensington, and is a very free bloomer and of good vigorous habit.

Marie Guillot (Guillot).—Color white, faintly tinged with yellow; large and very full; petals beautifully folded in an imbricated form; growth vigorous, "extra." It was awarded a first-class certificate at Lyons exhibition, 1873, a gold medal at Lyons in 1874, and was very lately exhibited (in March last) at the exhibition of the Royal Botanic Society by Mr. H. Bennett, of Stapleford.

Marie Opoix.—Flowers of medium size, full and of fine form, white, yellowish in the center, and sometimes tinted with pink. It is much better than Niphetos, and likely to become very popular.

Comte de Sembui (Madame Ducher).—Color salmon-rose, reverse of the petals silvery; vigorous; habit good; large and full; good form; very fine. First prize at the Lyons exhibition in 1874.

Perle des Jardins (Levet).—This rose is said to be of the highest merit; the flowers are very large, full and well formed; it is vigorous in growth; color varying from pale yellow to deep canary-yellow. This will be a formidable rival to Marechal Niel, because of its rich color and the continuous manner in which its flowers are produced. Awarded a silver medal at the Lyons exhibition in 1874.

Shirley Hibberd (Levet).—The color of this rose is Nankin yellow, said to be a new color and quite distinct; a free bloomer; growth vigorous; flowers large and full; the form cupped. Awarded a first-class certificate at Lyons in 1873. I have heard an excellent character of this rose, and being one of Levet's raising, is sure to be good.

We have about twelve new tea-scented varieties sent out this spring, and eight of them are very fine; some of them may probably turn out hardy, as the Cheshunt Hybrid has done with me. It has withstood a frost two degrees below zero on standards without the slightest injury.

Hybrid Perpetuals.

My information about the merits of the new hybrid perpetuals for 1875 is not very great as regards numbers, but rosarians must not condemn any of the new roses until they have been fairly tried. I have heard that the following are really good, a few of them possessing sterling merit, viz.:

Hippolyte Jamain (Lacharme).—Color carmine-rose; very large and full; vigorous habit, "extra." This is reported to be a real acquisition. I have a large quantity of plants in pots, and all of them are of good strong growth, the shoots being three feet long, with fine foliage.

Gonsoli Gaelano (Pernet).—Flowers large, nearly full, and of good form; delicate satiny white. In the way of Malmaison, and a decided acquisition.

Ingenieur Madele (Moreau-Robert).—Flowers large, full, and of fine form; color bright coral-red; vigorous in growth, and said to be free flowering.

Monsieur E. Y. Teas.—Flowers large, full, and of excellent form; color rich cherry-red; very showy and attractive, vigorous in growth, and altogether a most desirable acquisition.

Villaret de Joyeuse (Damaizin).—Flowers very large, full, and of beautiful form; color delicately shaded rose-pink; growth vigorous. An excellent rose, likely to be of considerable service in competitive stands.

May Turner (E. Verdier).—This is said to be a first-class rose by several persons, in the way or style of Caroline de Sansal, which is an excellent old rose; flowers very large and full, well formed; color delicate salmon-rose, deeper in the center; vigorous.

Colonel de Sansal (H. Jamain).—Carmine, shaded crimson; velvety, very fine form; very large, full and vigorous.

Comtesse de Serenyi (Lacharme).—Very large and full; fine form; delicate rose, shaded bright rose; said to be like Baroness de Rothschild; a seedling from La Reine. All Lacharme's roses are good, and there is every reason to believe that this will be a first-class rose. It was exhibited at the Royal Botanic Society's last meeting.

Antoin Mouton (Lenet).—Flowers are of an immense size, almost as large as Paul Feron, to which it bears a rather close resemblance. It is also very full and of fine centifolia form; color bright rose with a silvery reflex; vigorous habit; said to be very good; extra.

Souvenir de Mere Fontaine (Fontaine).—Bright rose, carmine center; large, full, and well formed; vigorous; extra fine. This rose is highly spoken of.

Souvenir du Baron de Semur (Lacharme).—I have heard good accounts of this rose, the color of which is very attractive. It is of vigorous habit; the blooms are of large size; form good and very full; color deep velvety purple, shaded black and deep fiery red. In the same line of color as Xavier Olibo.

Madame Riviere (E. Verdier).—Very vigorous; flowers very large and full, fine form; color beautiful rose, very delicate and fresh. I have heard a good character of this rose. One rose nurseryman in the south speaks very highly in its favor. It is a hybrid, but not perpetual. Suitable for exhibition.

Hybrid Perpetuals of 1874.

The following are really good roses of 1874, and for full descriptions the reader must refer to the rose catalogues.

Thomas Mills (E. Verdier).—Dazzling bright rosy carmine.

Miller Hayes (E. Verdier).—Dazzling velvety red, like Charles Lefebvre.

Pauline Talabot.—Very like Dupuy Jamain.

Madame Louise Leveque (Leveque).—Fine, bright, clear rose; perfectly imbricated. This is very fine.

Captain Christy (Lacharme).—A beautiful rose, said to be an improvement on Mademoiselle Eugenie Verdier, and of the same delicate color and shading.

Etienne Dupuy (Levet).—This is well spoken of, and Monsieur Levet recommends it.

Madame Bernutz (Jamain).—Salmon-rose; beautiful color; very large and full. A good rose for exhibition.

Reynolds Hole (Paul & Son).—A very nice rose, and a free bloomer in the garden. I am sorry to say it is tender with me, and that the Cheshunt Hybrid is quite hardy. Three standards of Reynolds Hole were killed by frost, and Cheshunt Hybrid was not injured by the severe frost already mentioned.

Wilson Saunders (Paul & Son).—Petals large and fine; color, intense vivid crimson. This rose has been well exhibited, and is now known to be a first-class rose.

Kœlber (Boyau).—Deep bright red; large, full, fine form, vigorous. This is decidedly one of the best of the 1874 roses.

John Harrison (E. Verdier.)—One of the very dark colored roses; is well spoken of, and said to be a first-class rose.

The Plants and Flowers of California.

BY JAMES VICK.

ONE of the most beautiful floral exhibitions we ever beheld was on the road from Murphy's Camp to the Calaveras Grove, and we think not more than three miles from the Grove. This was about five acres of *Nemophila* in full bloom, making a more compact

and beautiful mass than we have ever seen this flower produce, either in Europe or America. On approaching the Grove we saw something that startled us, though we really did not apprehend any danger. Near the line of snow—for snow still lingered in the shady places and dells, where it had become piled up during winter storms—we observed several crimson spikes growing from the moist soil. We left the carriage in a hurry, and knelt in wonder and delight before the beautiful Snow Plant (*Sarcodes sanguinea*), just trying to dig one up. This is a parasitic plant, growing on the roots usually of pine trees. The stem is succulent, all above ground being rosy crimson, while the portion not exposed to the light is pale pink. The usual height is from one foot to eighteen inches, but the *California Horticulturist* describes one recently found near where we first saw them, twenty-eight inches in length, the spike of flowers over thirteen inches, and bearing ninety-eight blossoms. Before leaving the mountains, we were fortunate in obtaining a good painting of this plant. The Snow Plant is quite plenty in the Sierras.

Bolander's Catchfly Pink (*Silene Bolanderi*) is one of the prettiest wild flowers the tourist will meet in his travels. The flowers are of the size and form shown in the engraving, and of the most delicate pink color imaginable. When we first saw them in bloom while driving along rapidly in the stage, our first impression was that we had found a new Lynchnis, after the style of the best cultivated sorts, like Haageana; then we thought it must be a Japan Pink, somewhat after the style of D. laciniatus. To settle this question, we stopped the stage with a good cigar, until we had time to select specimens. Dr. Kellogg informs us that it was only recently discovered, and first described in a monthly journal of San Francisco, called "*The Living Way*." As the doctor observes, it is a match for the finest Japanese Pinks that have had ages of labor bestowed on them.

Ithuriel's Spear (*Tritelia laxa*).—This plant resembles the Agapanthus, and improves wonderfully by cultivation. It bears a large cluster of flowers, often as many as fifty. The bulb is found very deep down, and the leaves are few, narrow, long and drooping. The color varies from Victoria blue to purplish blue, according to soil, exposure, etc.

White Tea Tree, or Mountain Birch (*Ceanothus integerrimus*).—The mountains about the Yosemite abound in this beautiful lilac-looking shrub. Imagine, if possible, dear reader, that you are on a road cut in the mountain side, with a thousand feet of the mountain below, and quite as much above you, and all this, as far as the eye can reach, almost literally covered with white lilac bushes, and all in full bloom, and you will have something of an idea of what we saw and enjoyed one day, when, to relieve the tired and over-burdened horses, we climbed four miles of mountain road. Dr. Kellogg writes us of this beautiful plant: "The young twigs have the odor and flavor of the spicy black birch of the Eastern States. One acre of upland well stocked with the Birch is sought after by shrewd dairymen as equal to three of common lowland for the cattle to browse on when the low pasture dries up. Though it does not increase the quantity of milk, it adds ten to sixteen per cent. to the butter—most invaluable for stock when a very dry season occurs, or during severe winters. The bark of the root is becoming celebrated for various diseases, chronic derangement of the liver from miasma, obstinate diarrhœa, etc. The Mountain Birch abounds in the Yosemite and many or most parts of the middle Sierra Nevada mountains."

Delphinium Nudicaule.—Among the beautiful flowers that adorn the California mountains, we saw nothing really more decorative than the bright scarlet Larkspur (*Delphinium nudicaule*). Every mountain-top, especially in the neighborhood of the Geysers, seemed covered with these brilliant little flowers. We filled our hands with the flowers, and our pockets with the seeds; and though often warned that rattle-snakes abounded, we saw nothing more formidable than the pretty little lizzards, that seemed as lively as crickets.

Gardening.

Sunshine in Horticulture.

BY A. L. HATCH.

AMONG the all-pervading agencies in nature, there is none of more importance to horticulture than sunshine—simple, beautiful, generous sunshine. Behold it in spring-time, melting vast fields of snow and ice, chasing Winter back to the north, awakening vegetation from its winter rest, quickening to life and imparting vigor. Think of it glinting among the trees, bronzing leaves, tinting flowers, or coloring fruit. Think of it in summer glow, when its very fervency is languor to animal life. Think of it silently evaporating immense quantities of water from mother earth, and extracting juices from myriads of plants, and think how it is steaming up to the clouds like a perpetual oblation from the shrine of nature, to be returned in gentle dews, refreshing showers, or mighty storms. Think of it in all its chemical, chromatic and calorific powers, and it is ever sublime and grand. Consider it as we will, it is one of the most powerful elements of nature, and of prime importance as an influence in all fruit culture.

During summer, when the mercury stands at 95° above zero in the shade, place a thermometer near the ground, where it will receive the full force of the sun's heat, and the mercury will rise to 120° or more. The surface of the ground, where unshaded, is crusted and baked, and the earth, to the depth of several inches, will be superheated far above what is required for the healthy growth of fruit trees, such as the common apple. The radiation of heat during such times from a clean, cultivated surface, the heat of the sun's direct rays, and the consequently large evaporation of moisture, both from the tree and the earth, must injure the vitality and impair the health of apple trees. The exact limit of heat that apple trees may endure without impairing the full health of leaf, or bark, or bud, is probably such as obtains with the mercury at about +75°. The ill effects of excessive heat are augmented by drought, that wilts the leaves and checks growth; also by moisture, present at times in the form of dew, which may not have evaporated until the sun's heat becomes quite considerable, thereby producing leaf scald, etc.

It is during summer, when exposed to this extreme heat, and to the fickleness of the season in the matter of rainfall and drought, that our fruit trees make their annual growth, and which they must mature and invest with vitality to endure the excessive cold of winter—and such winters here, too, as will congeal the mercury. To be successful, then, *our* apple trees must be able to withstand cold and heat ranging from 40° to +120°, or a difference in all of 160°

The first growth of an apple tree each season, and the only one a healthy tree should make, is made during the first part of the season, and is usually completed in length by the middle or last of July.

Suppose the limbs grow one season two feet, and suppose six inches of that growth was made the last half of June, and the last six inches in July. If the last half of June was very hot, or the tree suffered from drought then; if it was given clean culture, and the sunshine poured upon the earth under the tree, and was radiated in full force, then the growth of the tree made the last part of June will have been injured. The foliage then grown will be crisped and scorched, and very likely not a perfect leaf will have been developed. If the first of July is cooler, and the weather fair as concerns heat and moisture, the six inches of growth made then will be healthy, and the foliage perfect. Thus, at the end of the season, every apple tree will show what vicissitudes it has suffered in the way of heat and drought.

To all thinking minds it is evident that perfectly healthy foliage is necessary to the development of the greatest vitality. At the base of each leaf on the current year's growth of an apple tree, where the stem joins the limb, there is a bud. If the leaf is perfect, and adheres until mature, the bud is perfect. If the leaf is very defective, dwarfed, diseased,

or falls off before maturing, the bud will be correspondingly poor and undeveloped. Buds formed one season should expand the next, and may grow leaves, flowers, limbs or fruit spurs, as the case may be. If the buds are defective from the causes set forth above, they may not expand at all the next season, and only the terminal buds, or such as have most vitality, will grow. We have seen trees that had been given clean culture during a very hot, dry summer, that made a fair growth of limb, but did not expand any buds the next season, except the terminal buds. As a consequence, all the foliage was borne on the new growth of wood; fruit spurs and fruit buds were not developed, and the bearing of the trees was retarded. Had the foliage been perfect the first season, the buds would have been perfect, and would have developed the next season into leaves and limbs, and small spurs would have grown along the first season's growth. Had the foliage been perfect that season, fruit buds would doubtless have formed, to grow the next season. It is not a rule that all trees develop fruit spurs or fruit buds grown on two-year old wood, but that was the tendency of the variety observed. All varieties grow fruit only from buds formed the previous season. This shows that the growth of fruit depends upon the previous year's developments, and that this depends upon sunshine, heat, etc., we have endeavored to show.

The great lack of our seasons is not heat so much as moisture at the proper time. Could we but command the supply of rain so as to utilize the heat of summer, the products of our fields could be vastly increased. With underdraining and irrigation we have no controversy. That they are useful concomitants of agriculture, we firmly believe. There is, however, another adjunct of horticulture of great importance, and that can be more generally commanded than the others. In our opinion it is sufficiently potent in good culture to be called the *sine qua non* of pomology. We refer to mulching. By that we mean covering the surface of the earth with vegetable matter to such a depth and width around trees, as to secure immunity from drouth and parching of the ground; to prevent superheating of the earth and consequent lessening of vitality of the tree; to secure and retain tilth and proper fertility; to enable the tree to make its growth at the proper time, mature it and maintain an equitable supply of moisture, that the functions of the tree may be properly performed at all times.

What to apply as mulching, when and how to apply it, are subjects that every fruit culturist ought to study and understand. That it is necessary, we think is proven by prevailing conditions of climate and culture.

The effect of sunshine upon apple trees is but a simple illustration of its power in horticulture, and mulching is only one method of modifying its influence. Its effects, powers and influences are general, and must be considered in all successful fruit culture. He who understands it best will know one essential to success in horticulture; and success is also the Sunshine in Horticulture.

Ithaca, Richland Co., Wis.

Caterpillars.

BY MYSTIC.

CATERPILLARS have been very numerous in this region for several years. As some persons know, and some do not know, these insects, like many others, undergo several changes of existence. Hatching in early spring, they feed upon the leaves of the apple and other congenial trees until the first part of June, when they migrate for a change of existence. To-day (June 7th), and for two days previous, they have been leaving the trees where they have been hatched—emigrating to protected spots, to remain until converted into a chrysalis state, in which they appear for some time as if inanimate.

Caterpillars are not suffered to colonize and flourish in my garden; but, at their emigrating season, they cross the street and lots of land a hundred feet wide, and come into it from my neighbors' gardens. This spirit of emigration is remarkable, when it is considered there are plenty of good hiding places on the fences and buildings on the premises where they have grown. Though they crawl off to

die as caterpillars, they indulge their appetites for several days after reaching my garden, in feeding upon my rose bushes. Twice a day I am obliged to pick off and kill them to save the leaves from destruction. A few of them feed even upon the young and tender leaves of the pear trees, which are not palatable to the caterpillar.

From the chrysalis state, the caterpillar emerges into a moth that makes winged incursions into the neighboring gardens and orchards. And thus those, who vigilantly exterminate the caterpillars on their own land, must suffer from the negligence of their neighbors. The moth deposits her numerous eggs in a gray paste around small branches of trees. This paste becomes hard and very strong, resembling somewhat in appearance a miniature honeycomb. In the spring, before the leaves put out, these deposits of eggs may be seen by a careful inspection of the trees. Pick off and burn them before they are hatched. This is practicable and quickly done on small trees. The eggs in some of the deposits on my peach trees got the start of me this spring —hatching out before there was a leaf or a flower put forth. But these tiny insects, as soon as hatched, had sense or instinct enough to find the flower buds and eat into them.

The vitality of the caterpillar eggs is astonishing. It survives cold twenty degrees below zero, and how much greater cold, I do not know. Cut open these eggs with a sharp knife when the mercury is below zero, and you will find them apparently unfrozen.

Caterpillars, when in their nest, can easily be killed, if within reach even by climbing. Use slippers, or stockings only, in climbing, so as not to injure the bark of the tree. Those out of reach on the extremities of limbs may be killed by burning, if the injury or death of the ends of the limbs is not objectionable. Wind and tie a woolen cloth around the end of a pole (making a ball as large as a pint bowl); saturate the cloth with kerosene oil; set fire to the oil and hold the burning mass under the nest. Another effectual way of killing caterpillars without injury to the tree (a favorite one with me when a boy), is to shoot them in their nests. A small charge of powder only, with the muzzle of the gun a few feet off when discharged, will do it. Breaking up the nest and knocking off the caterpillars with a pole, is not effectual. A large portion of them will escape on the ground, and in a few hours be on the tree again.

One of the emigrating caterpillars came to grief and death in my garden, yesterday, in the following manner: It was about two-thirds of the full size, and was attacked by a family of small ants. I first saw it within an inch of the entrance of the ants' abode in the ground. The ants were in great commotion. In turns they charged upon, and, for a moment, fiercely bit the helpless caterpillar, and then retreated. The fierceness of the assault probably made it short, exhausting their strength. Those at the throat stuck the longest, being doubtless the champions of the assailants. Generally, not more than half of a dozen ants charged at a time. The caterpillar would remain comparatively, sometimes entirely, still for a minute or two, and then squirm and wriggle. A harder bite than common would cause it to writhe and roll over, and throw off most of its assailants. Then fresh combatants would instantly rush to the attack. The caterpillar did not act in the least upon the offensive, unless writhing and rolling over can be called such; nor, what is remarkable, did it make any attempt to run away. Perhaps it was too badly injured. It had backed down half its length into the ants' entrance, when I removed it an inch distant—not knowing whether the descent was caused designedly by the ants, or accidentally by the caterpillar in its convulsions. Shortly the caterpillar was going down again more rapidly than before, tail first into the abode of the ants. Without a struggle, it gradually sunk into the hole; and in seventeen minutes from the time I first saw the attack, it wholly disappeared with the ants under ground, to become a feast for their valor. During the attack, I placed two large caterpillars, at different times, among the ants. The ants instantly rushed at them, but without success—the hairs of the caterpillars keep-

ing the most of them off. What few ants succeeded in fastening to them, were soon carried away by the caterpillars with rapid steps. Seeing the attack was hopeless, they abandoned it within a foot or two of the point of commencement.

Medford, Mass.

Japanese Maples.

LAST December a very valuable collection of twenty-four varieties of Japanese maples were imported at San Francisco, from Japan, by a gentleman of this city, and as some interest has been manifested in the welfare of these Asiatic nurslings, and sufficient time elapsed to decide their fate, we have taken pains to inquire about their present condition. As was stated at the time, they were put into proper hands; and we find that they have been properly cared for and are doing well. This will afford satisfaction to those who are interested in adding to our list of ornamental trees, for even this single importation, though confined to one class, gives us twenty-four varieties of this class, all of them unique and beautiful.

Probably our readers are not aware of the extent of our plant trade with Japan and China; or they may possibly think that we simply hold the unenviable position of debtor in this account. This is not so, for both these nations, the Chinese especially, are ordering quite freely in the line of ornamental plants. Mr. R. T. Trumbull, of this city, informs us that he has during the present season filled orders from China for the following plants: Fine roses, primulas, calla lilies, snow drops, lilies, native and foreign, fuchsias, fancy colored geraniums, native ferns, etc. Our Asiatic customers, in ordering plants, invariably call for the finest varieties.

Our horticultural receipts from China during the same period, consist of palms, grafted oranges, cape jessamines, camellias, flowering peaches, lilies, etc.

Mr. T. informs us that he expects to receive about fifty varieties of plants by the next steamer from China.

The Colorado Beetle.

MR. SUEL FOSTER writes to the *Country Gentleman*, from Iowa, that it was their practice there, formerly, to mix Paris green for this insect, with twenty to forty times its bulk of flour, plaster or lime, but that experience has taught them that mixing with water is preferable in three important respects: First, it is more effectual; second, it is more easily done; third, it is safer. He says:

"I have tried both ways, and this is my experience. I do not raise as many potatoes as some of my neighbors. Mr. B. told me, a few days ago, that last season he set his hired man to put on Paris green in water, and he himself mixed it with ashes. This hired man took the horse and wagon, with a barrel of water, which he had to fill three times for three acres, and with the garden watering pot, with a fine sprinkler, he put in eight quarts of water and a small tablespoonful of green, keeping it shaken up as he walked along, sprinkled three acres in less than one day. This killed them effectually, but they often, and usually, come a second time, and a second dose is necessary. It takes about one pound of Paris green to an acre each time; the price here is sixty cents a pound. These potato bugs at this rate will cost us here $2 to $2.50 per acre to raise potatoes. Mr. B. with the ashes and green, worked till nearly noon, and went over six rows—about one-fourth of an acre; then the sun came out, and he was willing to quit. It was not as effectual, and there is more danger of inhaling the dust. On using my sprinkler, I found it needed a V lip soldered on the under side of the nose, to prevent the drip from wasting."

A Simple Insect-catching Device.—A writer in *Les Mondes* says that he is enabled to materially reduce the number of insects which prey upon the flowers and fruits of his garden, by covering the inside of an old tub with liquid tar, and at twilight putting a lighted lantern within, leaving the whole out over night. The bugs, attracted by the light, try to reach the lantern and are caught and held fast by the tar.

Fruit Culture.

Pear Culture.

Address by Captain Charles H. Snow. Read before the Maryland Horticultural Society.

FOR market purposes, a pear should have the following qualifications: The tree should be a good grower, and hold its leaves well. The early dropping of its leaves, under drought, is a fault that detracts from the value of many late pears. No pear can perfect itself after loss of leaf. Good size and *color* are also requisite, until the taste of the masses is educated. The only pear of indifferent appearance, that has yet gained the public's approbation, is the Seckel. Pears, for market purpose, should be varieties that carry well, and do not rot at the core.

All summer and fall pears should be pulled from a week to two weeks before they are ripe, and, in the case of many varieties, when they are very green. Too much care cannot be taken in handling fine, large pears. The ease with which they decay, is proverbial. "As rotten as a pear," expresses a state of affairs far from pleasant. I have been struck with the great care taken in France with this fine fruit, especially late fall and winter varieties. On clear, fine days, they are hand-picked, and placed, not over two tiers deep, in baskets, the bottoms of which are covered with some soft substance; they are then carried, by hand, to the fruit-room, which is constructed so that it will be cool and dry, but, at the same time, the heat is never allowed to vary much from 50°. The room is shelved all round, and the pears placed so as barely to touch one another, each variety by itself. When required for eating, the winter pears are, sometimes, and with some varieties, brought into a warmer room.

My own want of success with winter pears, I believe, has been owing more to want of care, than any fault in the fruit. So much care is requisite to perfect fine winter pears, that I think it will be long before they become plentiful; but I see no reason that in a few years we may not have a fair supply through the months of September, October and November.

I will now give my views of a few leading varieties:

Seckel.—A remarkably healthy tree of American origin. The smallness of the fruit more than compensated by its flavor. The size of the fruit is much increased by high manuring. I have seen it fine on the quince. There appear to be two varieties.

Duchesse d'Angouleme.—A healthy tree of French origin, and, possibly, does better dwarfed than most other kinds. Though the fruit is not of the highest flavor, its large size and good keeping qualities will make it a favorite, until a better large one is found.

Bartlett—(*Of English origin*).—This well-known pear is a great favorite, and well-ripened specimens are very fine, if eaten just in their prime. It is probably, as yet, our best large early pear. Should always be pulled some time before they are ripe. Even pears, blown off long before their maturity, will ripen, if put in a close place. This pear commends itself by its size, color, early bearing, and I think it is not much subject to blight. If it came a month later, it would be more valuable, as it comes now in the height of peach season.

Sheldon.—This excellent American pear is fast gaining friends. The tree is a good grower, and quite free from blight. Fruit, medium to large, russetty in color; flavor very fine. Its color is against it, as a market pear, until known. Does not do at all on the quince.

Lawrence.—Too much cannot be said in favor of this fine late fall and early winter pear, and I believe the day will be when it will be more sought after than any other pear we have. Its beautiful growth, fine keeping quality, the persistence with which the fruit and leaves hold on, are remarkable. Its fine sweet flesh, firm and buttery, is peculiarly grateful, after most other pears are gone. I have eaten fruit from the same tree from last October to December 31st.

Howell.—A beautiful American variety. One of the handsomest pears that I know;

always fine shape and color; comes just after the Bartlett; tree healthy, holding its foliage well; fruit large, and will become a good market pear.

Urbaniste (*Flemish*).—Does well on the quince, and, as it is long coming into bearing on its own roots, this is fortunate. It is not, with me, a great bearer, but the quality is so fine that I recommend it to any one who wishes to raise pears for their own eating. The size is large, and color very good, and I find the tree very healthy.

Belle Lucrative.—This is one of Van Mon's seedlings. Does well with me, both standard and dwarf. The fruit has not color enough for a market fruit, but it is of first quality, and almost too free a bearer. This tree blights some, but holds its leaves well. Every amateur should have it.

St. Michel Archange (*syn. Rogers' Elizabeth*).—If it was not so subject to blight, this would be an estimable pear. Of fine growth, dwarf or standard; beautiful, good-shaped fruit; fair size; yellow, and of exquisite flavor, but blights badly.

Beurre Diel.—I am afraid that this superb old variety has run out. In all works on pears, it is highly recommended, but, with me, the leaves fall early, and the fruit cracks badly. Have thirty trees, but never got a bushel of good fruit from them since I planted them.

Vicar of Winkfield.—This pear is very variable in quality. I have had it equal to the Bartlett; very profuse bearer—too much so. I think if the fruit was thinned very much, so that it would grow large, and it was ripened well, it would be found to be very good in January. Does well on the quince; blights.

Tyson.—This is an excellent pear, of American origin. Does not do well with me on the quince. The flavor is excellent. It is long coming into bearing. Ripe in August.

Osband's Summer and Dearborn's Seedling.—Two fine American summer pears. They are too small for market purposes, but fine amateur fruit—doing well on the quince.

Beurre d'Anjou.—Large, showy French pear; has a high reputation both here and in Europe; does well on quince or pear stock; ripe November. It does not come up to my expectations, is too acid. If this is only an accident with me, I would recommend it where it has not this fault; very healthy tree.

Beurre Superfin.—Much lauded North, but far too acid. It is such a showy fruit, that I am always disappointed in eating it, which I seldom do.

Louise Bonne de Jersey.—This is a first-rate grower, either on quince or pear stocks. The quality has been variable—some years a stringent, and at others very fine. I am inclined to believe that if the fruit is thinned its quality will be much improved, as, with me, large specimens are always fine. Should be pulled soon, and skinned before eating.

General Taylor.—This is a Maryland seedling, of the highest flavor, and does with me on quince or pear stocks. It is not a good bearer, and the fruit often comes deformed. If it was not for these faults, I would place it in the first class; ripe last October.

White Doyenne (*syn. Virgalieu*).—I have been agreeably disappointed with this pear. Its reputation for cracking is so bad that I only planted a few dwarfs, but, up to this time, I never had one to crack. If it keeps free from this fault, it is unsurpassed. I have eaten it in Europe, where it stands No. 1. I intend to graft some poorer varieties with this.

Flemish Beauty.—Too much inclined to drop its leaves before the fruit matures. In wet seasons I have had it very fine; must be pulled as soon as the seeds begin to turn brown; otherwise it will rot at the core. With me does well dwarfed, and is free from blight; but West, and on the Hudson river, on rich bottom land, it is said to be very fine.

Beurre Clairgeau.—Like the last, is subject to loss of leaf before the fruit matures; does not do well on the quince, but comes into bearing very early on the pear stock. When it can be made to hold its foliage, it is a very large, showy, high-flavored pear, and keeps, with care, through December.

Beurre Giffard.—Does not do very well

dwarfed; it is a straggling grower, and does best grafted high; must be pulled early, or it will rot at the core.

There are other pears that I could recommend, where a few only are wanted for family use. Winter Nelis, Epine Dumar, Beurre Nantais Des Nonnes, Bezi de Montigny, Rostiezer, Fulton, and Andrews, have all done with me. The Julienne is also a beautiful early pear, though the flavor is not very high. These notes are taken after some ten years' experience. I have some other varieties that have not fruited, or of which I have not made up my opinion.

Huckleberries.

By P. D. Hammond. Read before Indiana Horticultural Society.

IT is true that vast quantities of Huckleberries are produced on lands which are not of any value. But I intend to show that while this class of fruit is hardly worth gathering except by Indians, a berry may be raised that is worth a place in the garden.

Is there any doubt about the practicability of raising this fruit under culture? Some seem skeptical about it, just exactly as my father would have been about cultivating strawberries. He wouldn't have believed the wild things would submit to be plowed and hoed and petted. But Mr. A. S. Fuller being questioned on this point, says:—"Time and again have I endeavored to direct the attention of small fruit culturists to the long-neglected but valuable species of the huckleberry, but with no apparent good results. All the upland species which grow in dry soils are wonderfully improved by culture, and there is not the least difficulty in producing bountiful crops in any soil where the common currant will thrive."

For the variety of berries which I have in mind, I have always had some doubts about their standing the hot July and August suns of this climate, and I think likely that special pains would be necessary to acclimate the plant which glories in defying the storms and tempests of the mountain peaks. But the question can only be settled by trying, the same as all horticultural doubts have to be determined.

Now, about the quality and value of the fruit. There is as wide range of varieties of the huckleberry, both as to the

Shrub, Habit and Fruit,

as of any other berry that can be named. Bushels on bushels of the black, low swamp huckleberry are picked and shipped every year which are almost entirely worthless. But that does not condemn the whole genus *Corymbosum*. I have picked these berries all situations from those dry and tasteless squirrel shot of the swamp to the hardy and presumptuous blueberries which grow on the rocks of

Owl's Head Mountain,

3,000 feet above Lake Memphremagog, in Canada. I have gathered them blue, rich and gamey as a partridge from plucky little shrubs not taller than a bunch of garden sage, and from bushes ten feet high. But I only wish to describe one variety, of which I speak from personal knowledge, and will keep within strict limits of fact. There is a forty acre field in the town of Stoddard, New Hampshire, used as a pasture. It is neither swampy nor unusually wet. I have gathered blueberries there, picking by hand a bushel and a-half a day of the fruit which, in size, sweetness and fine flavor would not be despised on the table by the side of any berries of any kind known to the gardener. These berries are quite as large as the cherry currant at its best estate, entirely blue and with bloom upon the fruit very light blue, juicy, pulpy and rich. The farmer who owns the field permits outsiders to gather for themselves, paying him a stipulated price of

Three or Four Cents Per Quart.

The bushes are high, averaging in size and height nearly equal to the ordinary lilac bush. Why it would not pay to cultivate and improve that fruit, or try it, I could never imagine. I attribute the neglect to the same sort of unbelieving stupidity which has almost exterminated fish from the streams in that country, particularly before even thinking that

the hand and skill of man could propagate and multiply what was so highly valued. The baboons of Africa are fond of fire. And they are said to gather and sit around an abandoned camp fire till the last ember is out, but they have n't quite sense enough to poke the brands together to keep the fire alive. With equal vacancy of mind the past generation in my native State destroyed forests, exterminated game and fish, and exhausted their soils by the most direct methods, and never thought of encouraging the overtures of nature in the rudimentary fruits which she offered. And we are not wholly cured of their follies. If there is in this society any fruit culturist who will give those New Hampshire blueberries a faithful trial, I will assist him in procuring seed, or plants, or both.

Note by Ed. of Horticulturist.—In the New York market, in the height of the summer fruit season, whortleberries invariably sell for a higher price than blackberries.

Grafting and the Phylloxera.

AT a meeting of the Missouri Horticultural Society, Prof. Riley, in an address upon the new grape pest *phylloxera*, called attention to the fact that certain varieties were exempt from the attacks of the insect. He recommended grafting as a remedy.

Speaking of this means as a preventive, he stated the absolute necessity of preventing the vine from taking root from the graft, as it would undoubtedly do, without constant care, if the operation was performed, as is most common, underground. To obviate this, he recommended two well-known methods of grafting above ground, but which are seldom practised in the West. He said:

The first is by temporarily making a false surface and grafting in the ordinary manner, *i. e.*, instead of digging away the earth and inserting the cion two or three inches below ground, it should be inserted two or three inches above ground, and the earth thrown up around it, to be removed only after the graft is thoroughly and permanently joined. There will then be no danger of the graft forming its own roots; and it is certainly as easy to throw the earth around the vine as to dig it away, while the mechanical work can be much more conveniently and agreeably performed above than beneath the surface. The second method is by inarching. This system of grafting does not seem to have been much practised in this country, yet while it requires great care, and success may not as often crown the effort as in the former methods, I hope more attention will in future be given to it.

The operation is comparatively simple. A slice two or three inches long is cut from one side of the vine to be grafted, and a similar slice from the vine which is to serve as stock, as near the base or butt as possible. The two cut portions are then brought face to face, so as to fit as neatly as possible, and are then bound together with cord, basswood bark, or other grafting bandage. In the course of a fortnight partial unison takes place, when the bandage should be somewhat loosened, to admit the expansion. In six or eight weeks, if the operation is successful, the stock and cion are firmly united, when the bandage may be removed. The graft immediately below the union, and the stock immediately above it, should then be partially severed, and in a week or two more should be entirely cut loose.

Prof. Riley closed by giving varieties upon which to graft, viz.: Concord, Clinton, Herbemont, Cunningham, Norton's Virginia, Rentz, Cynthiana, and also varieties to graft on to any or all of the above, as of first importance: Catawba, Iona, Delaware, Wilder; Gœthe, any European or hybrid vine with such; of secondary importance—Ives, Hartford Prolific, Maxatawney.

J. C. N., Duncan Falls, Ohio, says he sprinkles a handful of salt about the trunks of his peach and apple trees, from the 1st of June till the middle of July, and it prevents the borers working and benefits the trees otherwise.—*Rural New Yorker.*

Window Gardening.

Parlor Plants.

Read before the Massachusetts Horticultural Society. By Edward S. Rand, Jr.

WE have said that one great reason of failure in the culture of window plants is the choice of unsuitable species or varieties. There are many plants, indeed a large proportion, with which parlor culture is an impossibility. We are not able to supply the essential wants of the plant, and it sickens and dies. Yet there are many, very many plants, which may be most successfully grown, and some of these we propose to mention.

We must, however, bear in mind that very few plants will succeed if they are removed at once from the warm, moist atmosphere of the greenhouse to the parlor or living room; the change is too great, and the plant receives a shock from which it seldom recovers. Plants from a greenhouse should be gradually hardened off, and then will not suffer. Of the tens of thousands of pot plants sold from the street stands in spring, probably not one in ten survives. These plants are forced into bloom in small pots, have no constitution, and very few of them ever give another flower.

Plants taken from the garden in autumn to winter in the house should be carefully potted early in September, hardened off in the shade out of doors, and removed to the parlor when the nights become frosty; in warm sunny days they should have plenty of fresh air. Treated thus we may have autumn and early winter bloom, whereas if we delay the autumn transplanting until the plants are checked by frost, they seldom give bloom till February.

Our mention of species and varieties suited for house culture must necessarily be brief, and will be confined to winter plants. There are many flowers which do very well in rooms in summer, and which are valuable for those having no garden. Many of the plants we mention are very constant bloomers, and the foliaged species are ornamental both in winter and in summer.

ROSES.—These charming and popular flowers are not well adapted for house culture. The dry air affects most varieties unfavorably, and they rarely give satisfaction. Those with very double flowers seldom expand their buds. There are, however, a few old varieties which were formerly more common than at present, and which do well and are worth growing.

The best is *Sanguinea*, a very bright, semi-double variety, flowering in clusters, and always in bloom.

Agrippina is a good pot rose.

The *Pink Monthly*, if grown to a large plant, is seldom out of bloom.

Jennie is a very fragrant tea, and though not a first-class rose is well worth growing.

Safrano and *Pauline Labonté*, two of our best teas, do well if the air of the room is kept moist and not too hot.

Roses in the parlor need frequent washings or showerings, good drainage, and frequent stirring of the surface soil. If the earth in the pots is sour and sodden they soon become sickly.

ABUTILON.—All the species thrive in the parlor, except perhaps the red flowered (*A. insigne*), and even this we have seen doing well. The best is the common *A. striatum*, which is always in bloom, is a very clean plant, and of symmetrical growth.

Many species are tall growers, and are too large for common cultivation; where space and sufficient light can be given, they form fine bushes which give a profusion of bloom.

A. Pattersoni or *Santana* is a very free blooming, large flowered variety of compact growth.

A. Verschaffeltii has bright sulphur-colored flowers in great profusion.

A. Thompsoni and *A. vexillarium variegatum* are valuable for their bright foliage; the former, however, requires more heat than most kinds.

A. vexillarium has charmingly contrasted flowers of red and yellow.

A. Boule de Neige is a new dwarf, free flowering, white variety, which promises to be very valuable.

All abutilons require a rich, light soil, with

good drainage, and plenty of water and light. They thrive in the dry atmosphere of living rooms better than most plants, and with very little care give fine foliage and abundance of bloom.

CUPHEA.—For constant bloom there is no better plant that the so-called "cigar plant" (*C. platycentra*). It has bright, cheerful little flowers, grows freely, and never seems to become sickly.

CYCLAMEN.—The varieties of *Cyclamen persicum* are all well suited for parlor culture. A neater, more attractive plant, it would be difficult to find, and its floriferous property is an added recommendation. The tubers should be started into growth in October, watered moderately until in active growth, then more freely. The more light and sun the better. Seedling varieties are easily obtained, and are very cheap; in color they vary from pure white to deep rosy red.

CACTUS.—These are mostly summer bloomers, and all do well with but little care. There is, however, one winter blooming species, *Epiphyllum truncatum*, which is a capital window plant. Give it a light, not very rich soil, with good drainage, be careful not to overwater, and it will not fail to give satisfaction. In the species the flowers are pink, but in the many varieties, all of which do equally well, we have many shades of red and violet, and some dazzlingly beautiful flowers. The best are *Russellianum*, *violaceum*, *tricolor*, *salmoneum album*, and *cruentum;* but all are good and worth growing.

OXALIS.—Of this charming family all the species commonly found in greenhouses may be well grown in the parlor. They should be started into growth in the room and not taken from a greenhouse. The foliage of most is neat and clover-like, and that of some beautifully cut. The flowers are pink, white, and yellow.

O. versicolor is a very pretty basket plant, beautiful in foliage, bud and flower.

The common yellow species (*O. cernua*) is very fragrant and free blooming.

O. luxula and the variety *alba* have large pink or white flowers.

O. floribunda, both pink and white, is never out of bloom, winter or summer. Soil, rich and light, plenty of water when growing, gradually lessening the supply as the plants dry off, and perfect rest in summer until the time comes for repotting and growth.

TRITELEIA.—This little hardy bulb (*T. uniflora*) gives plenty of flower in a sunny window. Treat the bulbs as prescribed for *Oxalis*. The flower varies from pearly white to blue, and continues long in beauty. The odor of garlic which pervades the plant is not perceived unless the blossoms are gathered. Bulbs cost only a few cents each. It is one of the best and most easily grown window plants.

CHINESE PRIMROSE.—A plant of easy culture, very free blooming, never infested with insects, and always beautiful.

Young plants raised from spring-sown seed will make large blooming plants by autumn. The soil should be rich and light, and the plants should have as much sun as possible. The same plant will bloom from November to May,—indeed a fault of the plant, if fault it has, is that it often blooms itself to death. The double varieties are not as desirable as the single for house culture, and the fern-leaved kinds, although elegant in foliage, possess no remarkable blooming qualities. This primrose is one of the best of window plants.

PINKS.—Many of the monthly pinks do well in the parlor. The plants should be lifted from the ground in September, and grown in a light airy room. They will not bloom freely until after the turn of the year, but when they once begin will continue for a long time.

The three best in color are *La Pureté*, red; *Astoria*, yellow; and *President De Graw*, white.

SMILAX.—This pretty vine (*Myrsiphyllum asparagoides*) may be very easily grown as a window plant, and will flower and fruit freely. Pot the tubers in autumn in rich, well drained soil, and give the plants plenty of light, with very little heat. The chief cause of failure with this plant is the heat of the room. Train the delicate shoots to a flat

trellis, or let them run across the window on strings. Dust the foliage if it becomes dirty, and give air on every day when the temperature is above freezing.

CYPRIPEDIUM.—One of the Lady's Slippers (*C. insigne*), is a good parlor plant. The soil should be coarse peat and find sand. Keep the plant always moist, but never wet. It will stand any heat, but suffers from cold. The curious flowers are produced in December, and last in full beauty two months.

PELARGONIUMS.—The Zonale varieties are best for window culture. A rich well drained soil and plenty of sun and light are the requisites for success. If kept in the dark the plants soon become drawn, and if not frequently turned they grow one-sided. The aim should be to get short, stocky growth. The varieties with variegated foliage are all pretty, and generally do well in the parlor, but they are very inferior in flower.

The species with scented foliage, familiarly known as the "rose," "lemon," "apple," "clove," "nutmeg," and "peppermint," "geraniums," are all worth growing; in flower they are inconspicuous; many of the varieties of the rose geranium have beautiful, finely cut foliage. The large-flowered pelargoniums are generally unsuitable for window culture, though we have sometimes seen them well grown and bloomed.

RICHARDIA.—The Calla Lily (*R. Æthiopica*) is one of the best window plants. Give a rich soil and plenty of water,—indeed, the plants may stand in water without injury. In spring, plant out the tubers, repotting again early in September. The dwarf variety is desirable. The species with spotted foliage must be wholly dried off in summer; its only beauty is the foliage, the flower not being especially handsome.

AZALEA.—The varieties of *Azalea Indica* and *Phœnicea* bloom freely as window plants. The soil should be peaty loam and sharp sand. The reason why azaleas so seldom bloom well in parlor culture is that care is not taken to ripen the young growth which succeeds the flowers, and in which the buds are formed for the next year's bloom. Unless the air of the room is kept moist, azaleas are apt to drop their foliage. The species, white and purple, are better for house culture than any of the varieties; and of the varieties those with large foliage succeed better than the fine leaved kinds.

CAMELLIA.—If the room is kept cool and without furnace heat camellias may be bloomed in the parlor as well as in the greenhouse. The chief difficulty is the dropping of the flower buds, caused by dry, hot air. Do not attempt to force them, give plenty of fresh air on mild days, and there will be a fine spring bloom.

JASMINE.—The Indian Jasmine (*J. revolutum*) is a charming, free flowering species, with rich, dark green foliage, and fragrant yellow flowers. It thrives in the parlor, and well repays the trouble of growing. Soil a light peaty loam, good drainage, and plenty of water. We have seen one plant of this species entirely filling a large bow window, and bearing hundreds of flowers.

A great cause of the failure to bloom hard wooded plants well in the parlor is neglect of them during the summer. Parlor plants are too often, as soon as the weather gets warm, set out on a piazza, or under trees, or in a back yard, exposed to parching suns and drying winds, irregularly watered, and, in fact, generally neglected until autumn comes again. The wonder is how so many survive, and why they bloom at all. Let us bear in mind that it is in the summer that these plants prepare for the winter bloom, and that they need care and attention then quite as much as in winter.

Thus have we given a list of some of the plants suited for window culture. We have purposely omitted mention of the different species of Dutch Bulbs, such as Hyacinths, Narcissus, etc.,—of foliaged plants, such as Dracænas and Begonias, some of which do well,—of Ferns, of Ivy, and of the large tribe of succulents, many of which are very ornamental; also summer blooming plants,—Hoyas, Fuchsias, Vallota, and a host of others. The list is quite long enough for selection.

We cannot each of us grow all, but each

can choose his plants from those mentioned, and with care bestowed understandingly, there is little fear of failure. We trust more attention may be given to this mode of culture, and that, as is already done in England, prizes may in future be offered for the best specimens of window grown plants.

Propagation of Plants in Small Pots.

BY ANNE GRISCOM.

WE observed, in passing through some large green and hothouses, in Paris, belonging to the government, also in examining the glass-houses of a gardener in the suburbs of the city, that scores of slips and seedlings were placed in exceedingly small pots. Indeed so tiny were they, that previously to this we had purchased some, as toys for a little flower-loving lassie, not imagining they might have other uses.

These pots, bought at Nice, were made of a fine red clay, and seemed as light as pasteboard. Their length is one and a quarter inches; their diameter, just inside the brim, one inch and one-eighth. They are perfectly plain, but nicely shaped in proportion to their height, and are pierced with a drainage hole in the center.

Those we saw used were plunged to the top in a black soil, which appeared to contain a large proportion of charcoal dust. The soil *in* the pots seemed to be identical with that *outside*. These pots were invariably covered with glasses of a pale yellow-green tint, shaped like a flat-sided bowl reversed, and without the lower rim. They were about a foot high, and perhaps a little more in diameter at the base. We saw large numbers of these shades on shelves placed next to the glass, in the lower slopes of the houses, where the propagating shelves of our gardeners usually are. We concluded there must be a purpose in the use of the black earth; and it was either to attract the heat of the sun, or for the purity and health imparted by the charcoal.

Numbers of Begonia cuttings were growing thriftily in these small pots, the use of which must prevent much injury to the young roots, which are endangered when taken from among a crowd of young slips. To the amateur, the usé of such pots would be a convenience, as several could be placed in a large pot, and covered with a small glass.

The green glass shades were seen in grounds outside of Paris by the hundred. They were placed in regular rows over the plants, which they protected, or forced. We supposed they were strawberries, though the transit was too rapid for us to ascertain by looking out of a car-window.

We saw these glasses, also, in considerable numbers in the Jardin des Plantes, at Paris. They were placed either on isolated plants, or over seedlings. Here they were quite large, being nearly two feet high. There were others, too, shaped like miniature greenhouses, the glass being set in lead.

We cannot forbear mentioning the exquisite pansies we saw in bloom in this garden, and in the grounds belonging to the government. There were two varieties; one being quite small, but of exceeding rich colors and texture. We were told that this was the *newest fashion in pansies*. This did not prevent us from admiring the great disks of the older strain, nor the great variety and beauty of their upturned faces. They were generally placed in large bunches of one color and variety—often in long rows. Sometimes the sharp corner of a bed was filled in thickly with these plants, and in several instances we saw large oval beds completely filled with them. The size of the flowers was something marvelous.

The plants, both of the houses and the grounds, were in excellent health and neatly kept, but did not seem to be arranged with much effect to beauty, either inside or out. We must except the houses of the Jardin des Plantes, which we missed through a mishap.

We saw the Botanic Gardens of London. The plants in the houses there, with the exception of those containing the ferns, did not strike us as being in a thrifty condition. Our houses at Washington ought soon to surpass all *we saw* in Europe.

Editor's Portfolio.

Greenhouse Plants—Discussions and experiences of cultivators as reported to the Massachusetts Horticultural Society.

During the meeting of the Massachusetts Horticultural Society the past winter, many choice plants were exhibited, and valuable items of experience brought up in the discussions. We have made condensed notes of the most valuable topics, and think they will be found interesting to all our readers.

ORCHIDS.—*Oncidium altissimum*, remarkable for its abundant floriferous properties; this plant was exhibited in flower at the Rose Show in June, since which time the flowers have died away, and where each flower was in June, there is now a flowering branch with numerous flowers. The stalk shot up to the height of six feet, much branched and filled with bright yellow flowers; a rough count gave six hundred and thirty-two. The other, *Lælia Perrinii*, is a very beautiful species, with petals of a delicate rose color, the extremity of the lip being bordered with rich purple, and blooms at a season when we have very few *Cattleyas* or *Lælias* in flower. *Maxillaria picta*, is easily grown in any greenhouse. *Cattleya Loddigesii*, a beautiful species, also easily grown in the greenhouse. *Epidendrum cochleatum*, Mr. Rand thought hardly worth growing.

E. S. Rand, Jr., exhibited a splendid plant of *Phalænopsis amabilis*, a native of Manilla. This is the first time that this plant has been exhibited, and although the specimen was comparatively small it was obtained at great price. It is appropriately called the "Queen of Orchids;" the flowers are arranged in two rows down the spike, the sepals and petals are pure white, the lip of the same color, the inside being delicately marked with a rosy pink. If kept free of moisture, the flowers will remain in perfection for a long time.

Calanthe Veitchii, a hybrid between *Calanthe vestita* and *Limatodes rosea*. This is said to be one of the best and most useful orchids for winter blooming. The flowers are striking and attractive, the spikes being from twelve to eighteen inches long, and the blossoms of a rich rose color.

E. S. Rand, Jr., also exhibited *Gesnera bulbosa*, one of the oldest and best of the genus; also *Saccolabium violaceum*, a superb orchid from Manilla, where it attains the greatest perfection on the stems and branches of trees; the leaves are about a foot long and two inches broad; the racemes are a little longer than the leaves and are densely clothed with bloom; the sepals and petals are white, irregularly dotted with mauve and lilac, the lip violet in the centre with mauve at the sides. This plant bore four beautiful spikes of bloom, and although the species is said to be somewhat difficult to manage, it will well repay all extra care bestowed upon it, as it produces its beautiful flowers during the dullest part of the year.

Saccolabium giganteum.—It is a native of Burmah, and was first brought to the notice of the public by the Messrs. Veitch, in the autumn of 1866. It is very much like *S. violacea*, continues a long time in bloom, and is deliciously sweet.

Dendrobium albo sanguineum, a splendid orchid from India, shown by E. S. Rand, Jr. The flowers are very large, produced from near the top of the pseudo bulb, and are of a creamy white, with a crimson blotch in the centre of the lip. It lasts a long time in perfection, is very distinct and a fine, showy plant.

Dendrobium Cambridgeanum, a native of India; the plant shown by Mr. Rand is the first one in this country. This species was obtained by Mr. Such, of South Amboy, N. J., at a cost of sixty guineas; this plant is an offset from Mr. Such's. The habit is drooping and the flowers are produced on the young growth; the sepals and petals are of a bright orange; the lip has a crimson blotch in the centre. Also from Mr. Rand, *Dendrobium infundibulum moulmeinense*, a species of great beauty, resembling *D. formosum* in habit and growth of flower, but far surpassing it in size and profusion of bloom.

Vanda tricolor, with three spikes of flowers, which are of a pale yellow, spotted with crimson, lip purple, striped with white, and lasting a long time in perfection. It was a magnificent plant, and undoubtedly the best single specimen orchid ever exhibited.

One of the most beautiful displays of orchids was made in May, by E. S. Rand, Jr., who exhibited four fine varieties of *Cattleya Mossiæ*. The "*Gardener's Chronicle*," for 1864, p. 553, thus speaks of this species: "Four hundred blossoms of *Cattleya Mossiæ* at one view! This is a sight truly worth a journey to the Land's End to witness, and it is a sight that might have been witnessed a few days since, if not even now, in Mr. Warner's orchid house at Broomfield, near Chelmsford. And such blossoms too! Not puny things, with washed out colors, or pallid from sweltering in excessive heat, but located in a ventilated house quite enjoyable, and presenting richly marked colors in marvellous variety, and in all the vigor of robust health; the individual flowers measuring some seven or eight inches across, and the petals, in some cases, being as much as three inches in breadth. Mr. Warner has certainly learnt the secret of growing *Cattleya Mossiæ* to perfection, and consequently, such a picture as his show-house presented at the time of our visit is not, we venture to say, to be paralleled in England, or Europe, or the world."

Aerides Fieldingii, a fine free flowering species from India, the spikes long and branched, the flowers white and rose color, the leaves broad and from six to eight inches long, and altogether a fine exhibition plant; *Dendrobium transparens*, a rare plant, and the first ever exhibited, blooming in the same way as *Dendrobium nobile*, the flowers of a transparent pinkish lilac, stained in the middle of the lip with a blotch of deep crimson; *Oncidium cornigerum*, a very graceful and ornamental species, and quite distinct in habit; the spikes of flowers yellow spotted with deep red, and very beautiful.

Of that magnificent orchid, *Phalænopsis grandiflora aurea*, Mr. Williams says: "This is certainly the grandest of the many varieties of this fine orchid. It is a variety that bloomed among several hundred I imported from Borneo; the sepals and petals are unusually broad, and rounded, and the lip is conspicuously marked with deep orange. It is a compact growing plant with light green foliage."

Cattleya pumila, a lovely species from Brazil; flower rich rose with deep purple lip shading to deep orange, with a white margin. The plant could almost be put in the vest pocket, yet the flower was three inches in diameter. The second, *Stanhopea Martiana*, had fourteen flowers, white, shaded with lemon, and beautifully spotted with reddish purple. It is a native of Mexico.

E. S. Rand, Jr., had on exhibition another of his beautiful orchids, *Vanda Bensoni*, of which Mr. Williams says: "It is a very nice addition to this beautiful genus. A native of Rangoon; it belongs to the *V. Roxburghii* section. A free grower, producing in its native country spikes eighteen inches long, with flowers two inches in diameter, white on the outside and greenish yellow, dotted with reddish brown on the inside; lip white and violet color."

High Prices for Plants and Seeds.

That seeds and plants of new and rare varieties are sometimes offered at very high prices, most persons who have tried to buy them well know. There are several reasons for this, one of which is very well illustrated in the following from Briggs & Brother's *Floral Work*. There is this comfort to those who cannot afford these high prices; if the varieties prove desirable, in a year or two the price will be so reduced that even a moderately-filled purse can afford them:

Mrs. Larcom inquires the reason that new plants and seeds are always so high in price when they are first introduced. Our correspondent has but a faint idea of the expense and labor involved in procuring new plants from foreign countries. A few of the leading and most enterprising of the European nurserymen employ at times able and skillful men to explore certain desired localities where it is expected that new plants can be secured.

to collect all the new as well as the scarcer varieties that had been previously introduced. It sometimes happens that a whole consignment that has cost heavy sums of money as well as months of anxious and laborious care, are completely spoiled by the time they reach their destination. It also sometimes happens that only a few plants of a desirable variety can be procured and sent by the collectors to their employers, who have to propagate and increase them, before they can reap any reward whatever for their venture.

Mr. Linden, of Ghent, Belgium, who is perhaps the most munificent of any of the introducers of new plants, in employing collectors to search after new varieties, spent over $25,000 by one of his collectors in his trip from the mouth of the Amazon to the Isthmus of Panama. This immense sum was spent in one trip alone, and Mr. Linden has usually one collector out all the time. His collection of plants is worth a moderately rich principality.

When a new plant, which is known to the trade as a garden variety (that is a plant that has been raised from seed by the skillful cultivator, and which is usually produced by crossing one fine variety with another) is first produced, it is nothing but right that the raiser should be rewarded for the patience, painstaking and zeal that he has displayed for the general good. It must likewise be borne in mind that perhaps a thousand seedlings will have to be produced to give one single variety worth perpetuating, and this from seed that has been carefully fertilized and crossed with the idea of producing plants or flowers up a certain standard. After a fine variety has been thus secured and proved to be desirable, quite a time must elapse before a sufficient stock of young plants is raised before offering it to the public, and it is only by charging a fair, although seemingly high price, that the introducer or raiser can be compensated for the expense he incurs in obtaining them.

An Instructive Legend.

A trade contemporary tells that when Bacchus was a boy he journeyed through Hellas to go to Naxia; and as the way was very long, he grew tired, and sat down to rest. As he sat there, with his eyes upon the ground, he saw a little plant springing up between his feet, and was so much pleased with it, that he determined to take it with him and plant it in Naxia. He took it up and carried it away with him; but as the sun was very hot, he feared it might wither before he reached his destination. He found a bird's skeleton, into which he thrust the plant, and went on. But in his hand the plant sprouted so fast that it started out of the bones above and below. This gave him fresh fear of it withering, and he cast about for a remedy. He found a lion's bone, which was thicker than the bird's skeleton, and he stuck the skeleton with the plant in it, into the bone of the lion. Ere long, however, the plant grew out of the lion's bone likewise. Then he found the bone of an ass, larger still than that of the lion; so he put the lion's bone, containing the bird's skeleton and the plant, into the ass's bone, and thus he made his way to Naxia. When about to set the plant, he found that the roots had entwined themselves around the bird's skeleton, and the lion's bone, and the ass's bone; and as he could not take it out without damaging the roots, he planted it as it was, and it came speedily, and bore, to his great joy, the most delicious grapes, from which he made the first wine and gave it to men to drink. But behold a miracle! When men drank of it they first sang like birds; next, after drinking a little more, they became vigorous and gallant like lions; but when they drank more still, they began to behave like asses.

Eucalyptus Globulus.

A correspondent of the the Department of Agriculture, writes as follows:

IBERIA, La.: I obtained a few seeds of the *Eucalyptus Globulus*, and succeeded in raising one of those beautiful trees. It is now five feet high and seventeen months old. Other parties have had excellent success in raising these trees.

The Boston *Journal of Chemistry* for October, gives extracts from a lecture by Prof.

Bentley, in England, upon the properties and uses of this tree. In alluding to its power of destroying malaria, he says: "It is in this respect commonly regarded as being serviceable in two ways: First, by the far-spreading roots of this gigantic tree acting as a sponge, as it were, and thus pumping up water and draining the ground; and secondly, by emitting odorous, antiseptic emanations from its leaves." The professor does not attach much importance to the latter influence.

He cities the Cape of Good Hope, Algeria, Constantia, Cuba, and the Department of the Var, as localities where the planting of this tree has had a marked effect in the diminution of malarial disease.

Insects and Flowers.

Sir John Lubbock recently gave an interesting lecture in London, opening with a defence of the wasp, which he thought a much misunderstood insect. Those wasps, which sometimes give us trouble, are well-meaning creatures which have lost their way, and got out of their place. The wasp is very industrious; he had known one begin the transporting of honey about daybreak, and take away over fifty loads in one day, continuing its labor so long as light lasted. He showed that insects and flowers formed an united kingdom of sweetness and light. As insects get their form and color from flowers, and sustain life by them, so only such flowers had fine color, form, and scent as were related to insects. The lines and bands so ornamental to flowers have reference to the position of the honey—they are guides to insects, and, consequently, absent from night flowers, where they would be useless. For the same reason, night flowers are pale; the Lychnis vespurtina is pale, while its sister, the Lychnis diurna, which flowers by day, is red; it is the same flower laying aside its night-dress, and putting on a gay costume to receive her friends. Wind-fertilized flowers have neither scent, color, nor honey. There is a careful provision among the flower family against that "breeding in and in" which is contrary to sanitary principles; sometimes the stamens and pistils are in different flowers; sometimes they come to maturity at different times, and sometimes the pistil is protected from the pollen of its flower, all three of which are preventives against self-fertilization. But the lecturer showed a score of most exquisite contrivances by which the flowers took care that fertilization should proceed. The Cowslip has flowers of two kinds, and the Violet also, and each flower covers each insect with pollen, to be carried to the other, which the other similarly provides for its counterpart. The Berberry, Dead Nettle, Salvia, Sweet Pea, Daisy, and some others, become quite transfigured to the imagination, as Sir John, who had a hundred pictures for illustration, showed their ingenuity. One allures flies into its beautiful calyx, then holds them prisoners until its pollen has fallen, when they are liberated, but covered with pollen which they must carry to the next syren which captivates them; another has a tiny fence which keeps out all plebeian or small insects from invading the sanctuary reserved for his lordship the bee; another shows a similar loyalty to some other insect; another opens a fine avenue into which the insect must enter, but can only come out again through another avenue, squeezing through, and so moving a machinery for covering him with pollen to be borne to other flowers. Incidentally, Sir John referred to the sleep of flowers. He did not believe a flower clock, such as Linnæus contrived, could ever be of much use, for flowers were very variable, and on dismal mornings refuse to wake up until some hours after their proper time. They also refuse at times to go to sleep at the proper time, and he lately kept one of his flowers up all night.

Experience with the Wild Goose Plum.

A correspondent of *Colman's Rural World* says of this plum:

I have planted extensively of peaches and plums, and as I have planted four hundred trees of a variety (the Wild Goose) that I rarely ever see recommended, I will give my experience with it. Six years ago I planted forty of them. For two years my forty trees have been full of fruit. They are a large red plum, and I think far from second rate. Now

for the reason why they are full by the side of Washington, Jefferson, etc. They are stung by the curculio as much as any, and frequently carry the scar to ripening; but they are not injured, because they have a thick, tough skin that is rarely punctured deep enough for eggs to be protected from the sun enough to hatch. I have picked and laid away fruit not ripe, until I find that they can be safely gathered for eight or ten days before they reach market, and be as finely flavored as ever. The tree is a rapid grower, and is, in appearance, of the family of Chickasaws. My six-year-old trees will hold four bushels this year; and they are not easily killed, while at the same time I cannot find a live peach. I have written more than I intended, so I will close.

Almond Culture in Santa Barbara.

Mr. Olmsted, of Carpenteria, has finished picking his crop of Almonds. He will have from his orchard this season over five tons of the Languedoc or Soft-shell Almonds. Mr. Olmstead's orchard is only four years old, and, of course, is not yet in full bearing. His trees bore a few nuts when two years old. The third year the average yield to the tree was about five pounds. Two rows in the orchard, covering ground equivalent to two acres, that received great care in planting, and special culture, produced 2,000 pounds of dried almonds. This yield, at the wholesale San Francisco market price for the Soft-shell Almond, will give Mr. Olmsted about $230 per acre, after paying all expenses of the year's culture, gathering, sacking, and marketing. One reason of Mr. Olmsted's success in the cultivation of the almond is the fact that he keeps the ground clear, cultivates nothing between the trees, nor allowing weeds to grow up to rob them. Thorough cultivation is required for the almond, and the trees should be at least twenty feet apart each way.—*Santa Barbara Index.*

Camphor in Formosa.

As the gigantic Laurels from which the camphor is obtained are found only on the mountains in the possession of the aborigines, the acquisition of a constant supply is somewhat difficult. Only from those tribes which are on friendly terms with the Chinese can leave be obtained to cut down the trees. With such, a present given to the chief gains, as a rule, the required permission. The Chinese woodman then makes a choice of the trees which appear to be well supplied with sap, and, having felled them, he keeps the best parts for timber, and reserves the remainder for the iron boiling-pots, by means of which is evolved the sublimated vapor which yields the camphor. In the neighborhood of Tamsuy alone 800,000 pounds of this valuable commodity are produced annually. Petroleum also adds to the riches of the island, which, both from its natural and artificial products, is well worthy a struggle on the part of the Japanese to obtain, and on the part of China to defend.—*Cornhill Magazine.*

The Sunflower as a Preventive of Fevers.

We continue to see favorable mention made of the virtues of sunflowers as preventives of bilious fever, chills and fever, etc. A correspondent of the *Soil of the South*, writing from a place in Alabama which he says was peculiarly subject to fevers, gives the result of his experience in the premises, and in not a single instance where he planted sunflowers around his negro cabins, did their inmates suffer from fevers, while his wife, two children, and two house-servants, all had fevers, he not having planted any of the sunflowers around his own dwelling, which, in his opinion, accounted for the difference in the results. We trust that next spring New Orleans may be surrounded by a cordon of sunflowers, that they may be scattered through every garden and cover every vacant lot in the city. Who knows but they may prevent yellow fever also? The correspondent of the *Soil of the South* says:

"My opinion is, that the sunflower in its rank growth absorbs the very elements in the atmosphere that produce fever, or chill and fever, and what is the life of the sunflower is highly obnoxious to the health of the human family; nor do I believe that a man could ever have a chill who would sleep in a bed of rank sunflowers. This, too, seems to be no

new theory, as Lieut. Maury states that his gardener—a Frenchman—informed him that their sanitary influence had been long known in France."

The Absorption of Ammonia by Plants.

It has been generally believed that the ammonia present in the atmosphere (proceeding from animal and vegetable decomposition, etc.) might be directly absorbed by the leaves of plants, and might thus furnish them with nitrogenous aliment. M. Schoesing, in a note to the French Academy of Science, claims to have demonstrated, experimentally for the first time, that this is actually the case. His experiment consisted in cultivating two plants of the same species under conditions exactly similar, except that one of them was allowed to develop its foliage in an atmosphere pervaded with ammoniacal vapors, and the other in an atmosphere free from such vapors. Analyses susequently proved that every part of the former plant was "richer" than the corresponding part of the latter—the "enrichment" of the leaves having extended to the stem and root. The significance of the experiment is apparently not the proof that plants do obtain nitrogen and ammonia; but the proof that they absorb it directly through their leaves. But they may, and probably do, also absorb it through their roots, when it is washed from the atmosphere by descending rains and presented to the plants in the soil as *aqua ammoniæ*. The experiment above does not disprove this, and a similar direct experiment on the roots of growing plants would undoubtedly demonstrate it.

The Early Normandy Plum.

Says the *American Garden:* A new plum bearing this name has been originated in France. The early season at which it ripens may render it worth cultivating in this country. It is thus described: Tree a very vigorous grower, with long branches somewhat divergent. Fruit large or very large—as large as a Green Gage—divided on one side by a very slight furrow. Skin fine, transparent; separating readily from the fruit when ripe; of a clear purple color on the sunny side, and light flesh-colored on the shady side; covered with a light, bluish bloom. Flesh fine and melting; of a greenish color; somewhat firm; filled with a very abundant, sugary, refreshing juice. It ripens from the middle to the end of July, and this, together with its size, handsome appearance, and good quality, renders it valuable. We have no large plum of the same character which ripens so early.

Remarkable Specimens of Lumber.

Wm. Squires, of Nostocton, in writing to Hon. A. J. Dufur, Centennial Commissioner for Oregon, in relation to an exhibition of lumber at the Exposition, says: "I can furnish you at Tillamook Bay, one fir plank, 12 feet wide, 100 feet long; one spruce plank, 8 feet wide, 100 feet long; one cedar plank, 7 feet wide, 100 feet long; one larch plank 7 feet wide, 100 feet long; one hemlock plank, 5 feet wide, 100 feet long." Mr. Squires states that he can get much larger plank if transportation can be supplied. He can also supply planks of like proportions of chittim and other hard woods.

The Florida Cedar.

Active efforts are being made to acclimatize the Florida cedar (*Juniperis Virginiana*) in Bavaria. Its wood is superior to all other kinds of cedar, and is in great demand in the manufacture of lead-pencils. As this industry is largely carried on in Bavaria, the manufacturers are striving to secure a home-supply of the material so necessary to their operations. Seeds have been sown in the Royal forest, and about 5,000 young plants have been grown on one private estate. The cultivation of the tree is also being attempted in other parts of Germany.

It is said that Garibaldi is occupied, among other things, in planting the famous *Eucalyptus globulus*, or Australian gum-tree, around Rome, with a view to prevent malaria. Specimens of this tree are now common in the promenades and public gardens of Europe. It has also been introduced into Cuba, Corsica, Sicily, California, and on the Cape of Good Hope.

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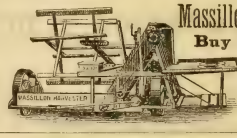
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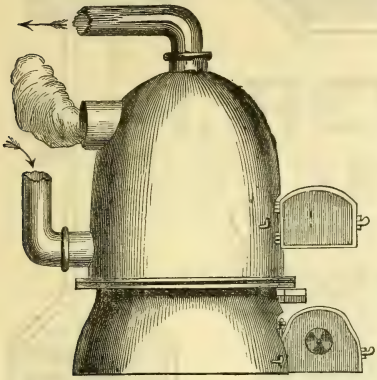


Fig. 1

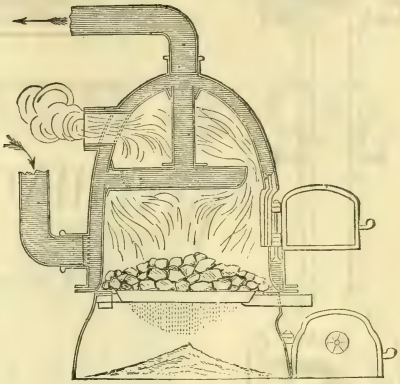


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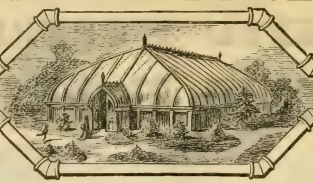
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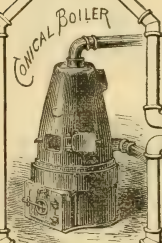


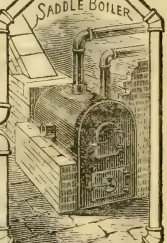
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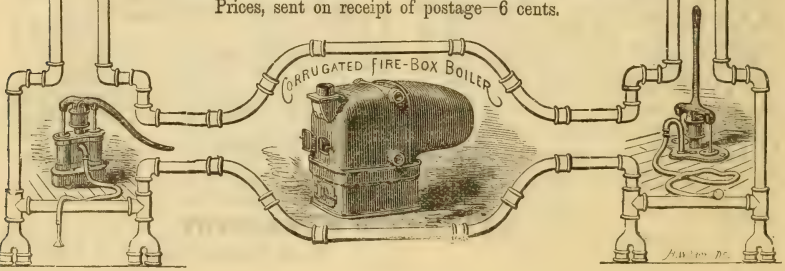
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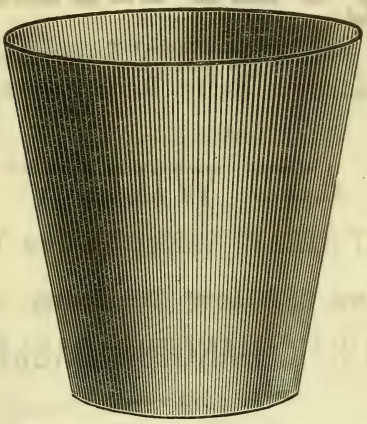


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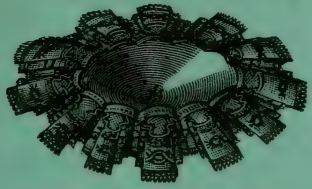
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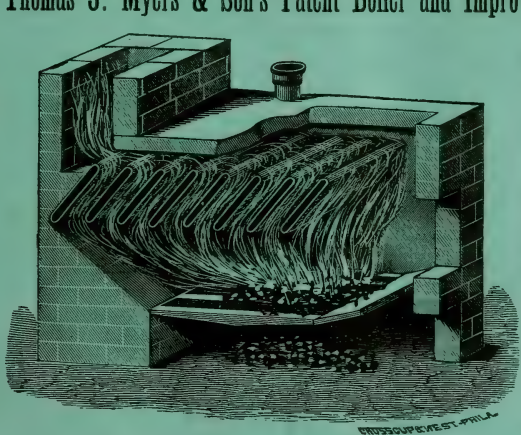
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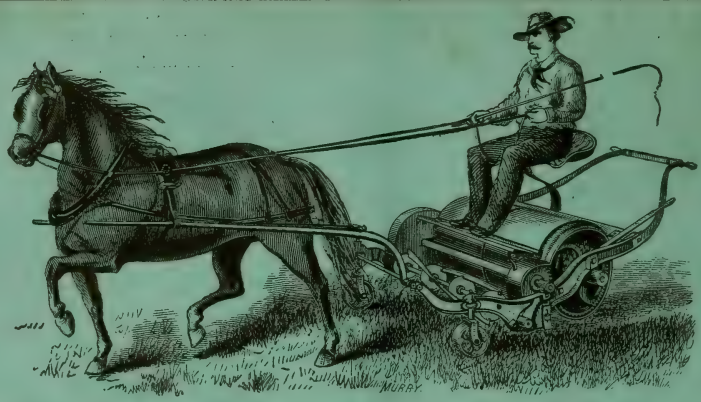
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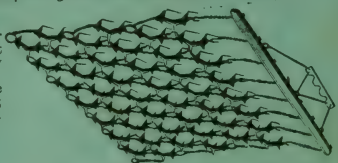
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JOURNAL OF RURAL ART AND TASTE.

EDITED BY

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VOL. 30. SEPTEMBER, 1875. NO. 351.

Special Contributions.

A Visit to Parsons' Nurseries.

BY J. H.

The old nursery establishment of Parsons & Co., at Flushing, Long Island, has for very many years enjoyed a reputation for rare trees and plants, second to none other in the Union.

Young men looking forward to entering the pursuit, have made this the Mecca of their journeyings; and older men who have grown gray in the trade, have not thought it beneath their notice as well.

Within the last few years, the old firm, increased by the addition of younger members of the family, have thought it expedient to separate, and form two distinct establishments, each of which are presided over by one of the original members.

During a late visit to Kissena, the site of the nursery owned by S. B. Parsons & Sons, the writer saw so much to admire in the stock of entirely new plants, that he felt a desire to direct the attention of all who feel an interest in arboriculture to this beautiful collection.

The grounds present an air of newness to the visitor, not at all in keeping with the rarest of novelties that abound here on every hand; but as the work of improvement was going briskly on, future visitors will, beyond a doubt, find the gardener's skill fully adequate to the situation.

Almost the first thing that strikes one's eye, upon entering the grounds, is a fine block of specimens of the rarer Conifers, among which was a large stock of the *Golden Retinispora.* It has proven entirely hardy and reliable here, as it has in many other places. Curious forms of the common hemlock were very attractive, especially *Abies Canadensis pendula* of Sargent, one of the most lovely of drooping Conifers. A small leaved variety called *A. Canadensis macrophylla* with foliage almost like a Heath, was very conspicuous; as well as the deep green stout form known as *A. Canadensis macrophylla.* The dwarf varieties of the well known Norway Spruce were represented by

splendid old specimens, spreading over the ground for a considerable distance, although but a few inches in height; the choicer kinds were *A. excelsa Gregoryana*, and *A. excelsa nigra pumila*. These are invaluable for cemetery lots, and for grouping on the lawn near the residence. *A. excelsa elata* was raised by the proprietors, and really resembles the unique Chilian Pine or *Araucaria;* having same peculiar spreading habit, but it is undoubtedly more graceful. *A. excelsa conica* is unsurpassed for its compact conical form, and bright green hue; somewhat dwarf in growth, and consequently adapted to the smallest collection. *A. excelsa inverta*, although not especially striking when young, becomes emphatically so with age; having the pleasing drooping tendency, so admired in all Conifers.

Among Firs, here as elsewhere, the *Nordmann's Silver Fir* is decidedly the most valued; its hardiness and entire reliability are unquestioned, to which is added a remarkable beauty.

The Common Silver Fir is represented here by two excellent forms, one, the *Weeping Silver Fir*, and the other, a dwarf dense bush called *Abies pectinata compacta*. The first of these has an awkward manner of growth, but when properly trained during its younger years, it makes a remarkably handsome tree. The *Noble Silver Fir* does well here, and so do the various forms of *Abies grandis*. But we are lingering too long among these fascinating evergreens.

Adjoining this block of fine specimens, is a suite of cold-frames well filled with the largest collections of Japanese plants to be found,—not only in the United States, but in Europe as well. They were sent home by that indefatigable collector Thos. Hogg, now a resident of Japan. It would be useless to undertake a description of these elegant novelties in a condensed article like this, for really the diversity of forms as here displayed, seemed indeed endless.

The feature of all others most beautiful in our eyes, were the elegant *Maples;* some with laciniated leaves, so finely and evenly cut as to resemble a green fringe; others again were tinted with the most lovely combination of colors, white, yellow and pink being in many instances prettily blended together. The all-absorbing question at this place, is, will they prove reliable? We have been skeptical heretofore, very, but plants here in the open ground look so well, that we feel like changing our opinion somewhat. *Dogwood*, *Celtis*, *Oaks*, in fact almost every genus is here dwarfed, or variegated, or cut-leaved, or curled-leaved, or gotten up to suit the taste of the searcher after novelty in plant-life.

We pass on to the strictly nursery portion of the collection, and here we find hundreds of *Rhododendrons*, looking not so well as in former years, owing to recent removals, with two or three terribly hard winters and summers to contend against.

But this enterprising old firm don't understand the meaning of "fail" in Rhododendron culture, and we predict visitors, during the next two or three years, will find everything in this department looking as healthy as of old. Large blocks of *Purple Beech*, *Magnolias* (including two or three new hybrids from Japan), a new *Weeping Elm*, *Hemlock*, *Spruce*, *Siberian Arbor vitæ*, gave evidence that our commissioners of parks need not send abroad for fine specimens to decorate their grounds. Republics are ungrateful in one sense at least, as they do not seem to appreciate the labors of the few gentlemen who are endeavoring to introduce a new series of trees and plants. The Messrs. Parsons are at times discouraged, as are their contemporaries in the same line of business, but our advice is, to persevere in the good work, and the reward will be sure to come in the end.

A large specimen ground has been recently laid out and partially planted, for the purpose of testing all the novelties as they appear; a praiseworthy undertaking, it strikes us, and one that will prove highly beneficial to the uninformed planter.

After following a winding walk through an adjacent piece of woodland, we came suddenly upon a cleared space, where were growing the

young plantation of Rhododendrons, numbering many thousands, all in the finest state of health,—the soil and location being just suited to their development.

Retracing our steps, we concluded our visit by an examination of the complete greenhouse department, but as a full description of this admirable arrangement has been given to the public more than once, we shall not undertake a repetition, but confine our remarks to the plants contained therein, that were especially interesting. The large Camellia house was filled with choice specimens two or three feet in height, all neatly fastened to stout stakes, a method of training too often overlooked in this class of plants, hence the numerous straggling bushes one so frequently notices in many houses. A rare collection of seedlings were just showing themselves above the surface of the soil in numerous pots, the result of an extensive importation from Japan; which embraced several species of Conifers that have proven reliable here.

A house devoted to Ferns, under the especial care of one who has made this class of plants a specialty, showed conclusively that his heart was in his work. Each individual plant, and there were many hundreds here, was as clean and healthy as any we have ever beheld. The *Citrus* family is one of the features of this establishment, for if our memory serves us aright, there were in course of propagation, one hundred and fifty varieties. Whole tables were filled with the tiny grafts, looking green and thrifty. It is needless to particularize the Azaleas for which this firm is so justly famous. These were here by the thousand, both tender and hardy. Of the latter, we passed frame after frame filled with remarkably luxuriant plants. Surely we need not send abroad for this magnificent genus. Before closing our remarks we wish to allude to one of the most showy features in the outdoor collections: it is the immense stock of variegated-leaved *Arundo*. Thousands of plants with their long maize-like leaves, ribboned with white, pale yellow, and the least tint of pink, were spread out before us in a manner we had never before witnessed.

The Greenhouse.

Greenhouse for September.

IF any repairs are yet required, no time must be lost in getting it finished, for some of the most tender plants will soon require to be housed; for after the twentieth of this month we may expect night frosts at any time; and although it seldom continues frosty more than a night or two at this time, it is sufficient to check tender plants and prevent their blooming satisfactory. This is the best season for greenhouse painting, especially outside. If any requires attention, it should be proceeded with without delay. It is a mistake to postpone painting until the wood is exposed to the action of the weather, for the wood decays very quickly, and every shower gives a deluge of drip inside, which is not only very unpleasant, but does much injury to delicate plants. We do away with drip to a great extent by having the sash bare and rafters grooved; but this is intended to catch the condensed moisture, and not expected to prevent drip from a leaky roof. As fire will now be necessary in warm houses at night, the fire-places, etc., should be in good condition for the winter's work, and a store of coals provided for the season, if there is room to store that quantity. It is seldom that coals are cheaper than at this season, and cartage, etc., is as reasonable now as at any time.

Bouvardias are seldom safe outside after the third week of this month, for we find the least frost prevents the plants flowering satisfactory, although the plants may not show any bad effects at the time. When convenient to plant out the plants on the stage, they are least trouble, and continue in flower longer; but if the plants are required for decorating other houses or rooms when in flower, it is necessary to grow them in pots. Six or seven-inch pots are usually large enough, if they are watered when necessary. If the soil is very dry, they should receive a good soaking of water the day previous to taking up; but generally it is possible to take the chance of a

good shower and dull day for this work. The soil should be made firm in pots, and receive a good soaking of water, be kept rather close and shady for a few days, giving plenty of air at night, and sprinkle the foliage frequently on bright, dry days, until the plants are established, which will be but a few days if taken up carefully. In lifting these kinds of plants, have soil and pots in readiness, and take up but few at a time, not to have the plants lying about any longer than possible; and they are best taken up in dull weather, or in the morning and evening. They do not suffer so much as when lifted during a bright, dry day.

Carnations and Chrysanthemums.—The above remarks will also apply to these, but it is not necessary to lift them until the end of the month. But it is not wise to allow a sharp frost on Carnations, or to postpone lifting them too late in the season, for the plants do not become established so soon as when taken up earlier.

Pelargoniums, if not yet shaken out from old soil, must be seen to at once. Trim away the long straggling roots, and repot in about two sizes less pots than those the plants were growing in during summer. The plants must not be overwatered, and have abundance of air day and night, with slight shade from bright sun.

Calla Lilies must be turned out of pots, and all the old soil and offsets removed. Repot in from five to seven-inch pots, according to the size of tubers. We find a seven-inch pot is large enough to give abundance of the largest sized flowers, if the soil is good and abundance of water given when the plants are in full growth. Not that the Calla is particular as to soil, but a good, stiff loam, with a free mixture of decayed manure, is best. A pinch of soot in the bottom of pots is useful; it prevents worms from being troublesome, for although one of our lady correspondents considers worms useful in pots, very few cultivators will be of the same opinion, and we should certainly recommend their absence.

Roses.—Any pot plants requiring a larger pot should be attended to at once, if the plants are required for forcing. Those not requiring potting should receive a top dressing of good soil and manure. Any dead and weak shoots should be cut away, and the plants be plunged when heavy rains can be turned off, and the plants kept rather dry, to prevent a soft late growth. Those plants which are planted out in the greenhouse should be trimmed through and surfaced with good, rich soil.

Seedling Cinerarias and Calceolarias must be placed in a cool, moist frame. If allowed to become dry, or the plants are in a hot, dry place, insects will be very troublesome. Give larger pots when necessary, using a rich, heavy soil; it retains the moisture better than a light soil.

Chinese Primulas will be growing fast, and require careful watering, but a more liberal supply will now be required if the plants are well rooted.

Poinsettias and Euphorbia Jacquiniflora, if outside, will require housing at once. Give abundance of air days and also warm nights. When it promises for a cold night, the air should be taken off, unless there is fire in the house, which will soon be required for many stove plants, and by the end of the month for these.

Geraniums for winter blooming should be placed under glass, or at least where they can be protected from heavy rains, but be well exposed in fine, bright weather. The blooms should be pinched off until the middle of next month; the plants will bloom much better for doing so. These plants require plenty of room, for if crowded together, many of the principal leaves will drop off.

Caladiums must now be gradually dried off, but do not discontinue watering all at once. Some of the later growing plants may be allowed to grow for a time longer, if room can be spared. The bright foliage is useful in the early autumn, when pot flowers are rather scarce; but it is not wise to continue these plants in bloom too late in the fall. The roots do not keep so well, or start into growth so readily in the spring.

Alocasias are evergreen, and should have water enough to keep the roots active through

the winter; for if the foliage is allowed to entirely decay, the roots will rot, and if the plant does not die outright, it is a long time starting, and the growth is weak and poor. Plants of Alocasias and Caladiums which have been planted in the open ground for summer decoration, must be taken up before any frost, or the bulbs will be sure to decay. The principal leaves may be cut off, and the roots laid in sand in a warm place. A temperature of 60 deg. will preserve the dry roots in good condition, if they receive an occasional sprinkle, but not enough to make the soil very wet.

Cannas can generally remain in the ground until the end of this month in this latitude, but it is not wise to allow a very sharp frost on the foliage before taking up; the roots do not keep so well. A cellar which will keep potatoes in good condition will preserve Canna roots well; but if very dry, the roots are best laid into sand, ashes or moderately dry soil. Those varieties which make but little tuber should have a part of the foliage left on the plants, and be placed close together into boxes, and be allowed a little light, or they are very liable to decay. We will give a short descriptive list of a few of the fine new varieties in an early number, for many of these are very fine, both in flower and foliage.

Tuberoses.—Some plants must be lifted for winter blooming before the end of the month. If there is room to spare, a few of those which are commencing to show the flower stems will bloom nicely if carefully taken up and potted in seven or eight-inch pots. These would flower well in a cool greenhouse, but later plants, which are required to bloom at Christmas and later, will require a good, warm house, and do best planted out on the benches, where a bottom heat of at least 75 deg. can be given. The plant will take quantities of water at the roots, and also over the foliage as often as possible, for red spider is often troublesome if grown in a dry house.

Camellias.—Plants which have been outside must be housed before the end of the month. Continual heavy rains will sour the soil and cause some of the buds to drop, if the plants are not in first-rate order. Wash the pots and clean the surface of soil, giving a sprinkle of fresh sandy soil; but care must be taken that the surfacing does not deceive the eye in watering, for large Camellias in pots require a large quantity of water at all times. Plants in the open border will not require frequent watering, but give sufficient to thoroughly moisten all the soil at each watering. One of the most frequent causes of the buds dropping is becoming dry in the ball, when the soil is apparently moist enough. If the plants make an early growth, a few flowers will commence to open and will be useful at this season; but in giving an occasional washing over the foliage, the water must not be allowed over the flowers.

Azaleas will have set their buds, and must be kept cool. These plants will not require so frequent watering as when in full growth, but must have good soakings when dry. See that thrip does not become established. Now the plants are in a drier atmosphere, an occasional good dash with the hose or syringe will keep it in check, and do much to prevent attack; but if a few leaves are infested, it should be sponged with tobacco water. Young plants and any others which it is desirable to make a second growth, must be kept hot and moist, or the growth will not mature in time to set the buds. We are more than ever convinced of the folly of turning young Azaleas out of doors. By obtaining a few of such plants of a variety we wished for propagation, the plants were so hard that they refused to grow at all under the same treatment as our own stock; and being short of stocks for grafting, we also tried a few hundred of those treated to the outside system; and although most of the grafts united fairly well, the stocks continued to die through the summer, and those which are alive do not make half the progress which those on our own stocks do, and will probably remain the hard, slow-growing plants of which we see so many about the conntry. No doubt, when the plants are planted out, either in frames or open ground, and shaded, and not neglected for water in dry weather, care being also used that weeds

do not become a harbor for insects, the plants will then make a satisfactory growth: but it is a question if it is not less trouble to keep the plants in pots, and they are certainly more under the eye.

Heaths will require extra attention at this season, for mildew is often troublesome on delicate varieties, and if not dusted with sulphur on its first appearance, will kill the plants in a few days. We would advise amateurs to commence with the hardy free-growing varieties, and increase their collections when they gain some experience of the requirements of the plants, and a moderate amount of success with those first tried. This is a class of plants which must not be left to the tender mercies of the average generally useful gardener; for although, with proper attention continually, the plants are easy enough of cultivation, they must not be left to take care of themselves for a few days at a time, while other more pressing things are attended to. This is one reason that these plants have so generally gone out of cultivation during the last twenty years in England. Previous to that time the extensive bedding-out system was in its infancy; also furnishing rooms with plants and table decoration with plants was unknown. Now all these things must be attended to with, in but few instances, any increase of assistance; and the days are no longer, so that something must be neglected, and it is usually the least important subject. In all large gardens, thirty years ago, a house devoted exclusively to heaths was a part of the establishment; but now the house is used for growing furnishing plants, for which purpose heaths are the worst of all subjects—not that the plants are not pretty when well grown, but a few days in a close, warm room is certain death to the delicate varieties. We have frequently used the Hymalis and Willmoreana varieties for about two days at a time for this purpose, and they often died afterwards, and always suffered much, but being free-growing sorts, are easily replaced. There is no doubt that planting out is the easiest way to manage these plants during the summer season. We saw a fair lot planted in the open garden this season, and another batch planted in a shaded pit, doing very well; but a batch which, from want of time, had not been planted, had about ten per cent. dead, and many more would die. We mention these facts to show that heath growing requires more care than there is often time to give in this country.

Orchids will have finished their growth generally, and will require more light; not that shading can be dispensed with entirely; but do not shade until later in the morning, and remove earlier in the afternoon. If the glass is painted with any mixture for shade, see that it is not too thick; for although few plants do well under glass without some shade, a thick covering, which is not removable mornings and evenings, and during dull weather, is injurious. There are less plants in flower at this season than at any other time of the year, and consist chiefly of the free-blooming Oncidiums and a few Cypripediums, with a few late Peristeria and Disa grandiflora flowers.

Orchids for Greenhouse Culture.

Read before Massachusetts Horticultural Society

BY JAMES CARTWRIGHT.

IT is a great mistake to suppose that because a plant is an orchid, it is necessarily of difficult culture.

In growing orchids, as in fact with every class of plants, there are certain rules to be observed, and these rules in the case of orchids are not difficult of application, nor hard to learn. Some orchids require a hot, moist atmosphere; others do very well with cool culture, while to some a high temperature is sure death.

While as yet our experience in orchid culture is limited, we can safely say that any one who has a forcing grapery or a rose-pit can grow many fine orchids successfully. The culture necessary for forcing roses for the market is just what is required for growing some of the choice winter-flowering orchids.

While these are always beautiful in flower, there is another aspect in which a florist can regard them—that of a profitable investment,

for they always bring good prices in the market. While the multitude are satisfied with rose buds, heliotrope and violets, there is a large and increasing class who are willing to pay liberally for the choice and beautiful, and by this class orchid flowers are appreciated.

We have been somewhat successful in growing several orchids, and purpose to give descriptions of a few of them, with notes of their culture.

Cœlogyne cristata.—This charming plant is a native of the hills of India, and does not require a high temperature. The pseudo-bulbs are roundish and somewhat wrinkled; the leaves long, glossy green. The flowers are pure white, with a crest of yellow, or nearly perfectly white; they are produced in drooping racemes in midwinter, and last very long in perfection. It is usually grown in a rose-pit or greenhouse. We grow them in peaty loam, mixed with crocks broken fine to keep the loam open and porous; the pot is filled one-third full of drainage. They require plenty of water in their growing season, which is from the time they have done flowering to the beginning of September, when we give them less water—only enough to keep the plants from getting dry. During their season of rest they should be kept in a cool place until their flower spikes begin to show, which will be in December. They require a sunny place to bring the flowers out.

For cut flowers this is one of the most useful of orchids, as it is desirable from its pure, rich color, and it is to be recommended for its very free blooming qualities. Very small plants will give an abundance of bloom, and as it increases rapidly, a good stock may soon be obtained from a few plants.

Lycaste Skinneri.—This very showy, free-growing plant is a native of Guatemala, and has now been in cultivation more than thirty years. It is one of the most valuable plants for the gardener, as it is easily grown, flowers freely, and the blossoms are large and very showy. They also last many weeks in full beauty, and remain in perfection long after being cut. This species, when it becomes more common, will be popular as a window plant, for it requires little heat and bears a dry atmosphere more readily than most orchids, although the plant should never be allowed to get dry, even when it rests.

The flowers are from three to six inches in diameter, the sepals and petals pure white, but varying to many shades of rose; the lip is almost covered with spots and streaks of carmine. The plant will often throw half a dozen flowers from one bulb.

The soil should be fibrous peat, but we have seen the plants doing well in common loam, with good drainage. After flowering, rest the plants until they begin to grow; then give them heat and plenty of water. Shade them from the direct rays of the sun, and as the growth matures, lessen the supply of water. This plant grows well in a forcing grapery, under the shade of the vines, or in a greenhouse that has shade.

Dendrobium nobile.—This is one of the oldest and one of the best of the Dendrobiums. It is a native of India, and indispensable in every orchid house, as it will give more blooms in proportion to the space it occupies than any plant we know.

The flower is white, shaded with lake, and with a rich purple or lake lip, and exquisitely fragrant. The plant begins to make its growth immediately after it has done flowering, and continues till late in summer. It should have plenty of water during its growth. We use a watering pot with a rose, so as to water all the plant. This we do several times a day, until its growth becomes mature, when we give less water. When the nights get colder, they require but little water, and may be exposed to the sun, but while they are growing we give them shade under some large plants of some kind.

While they are at rest, a cool place is the best for them, say about 50°, until the flower buds are well developed, which will be in the early spring. If the plants are kept too warm in winter, they start to grow and not to flower. The best soil is a mixture of peat broken in pieces about the size of walnuts, sphagnum moss, and broken crocks or charcoal. The plants should be set well up above the pot.

There are many of the orchids which can be well grown in a rose-pit or greenhouse.

Any one who will try those we have recommended will hardly be satisfied with these alone. There is no reason why the culture of orchids should not become a source not only of pleasure, but of profit.

Discussion.

Edward S. Rand, Jr., said that those mentioned are all adapted to greenhouse culture, but the number can be largely increased. Mr. Rand went on to speak of the orchids already mentioned and others, illustrating his remarks with specimens exhibited by him. The *Dendrobium nobile*, though flowering abundantly, had more than twice as many flowers two weeks ago. After the flowers had faded last year, the plant was kept in a house with the temperature at about 50° by night, and never raised above that point by fire heat, by day or night, though the sun heat raised it to 100°. The plant was liberally watered while making its growth, which it does in two ways: first, by producing young plants from the sides of the pseudo-bulbs; and second, by shoots from the base. After completing its growth, it was hung up in the full heat of the sun, and had no water until September. At about Thanksgiving time it was taken back into the orchid house. If taken in too early, the flower buds produce shoots and no flowers. If water had not been withheld, it would not have flowered at all, but would have sent out shoots and roots from every joint, which, if potted, would in a year have made strong plants. All orchids must have rest, or they will give no flowers. In their native countries there is a dry season, when they all look as if dry and dead.

The *Lycaste Skinneri* is very showy in flower, and almost imperishable. It can be grown in winter, and if kept shaded while in growth, it perfects very large bulbs, and will give fine bloom. *Cœlogyne cristata* requires about the same treatment as *Lycaste Skinneri*. It should have plenty of water. *Oncidium flexuosum* is well adapted to common cultivation.

Many orchids, if brought into the parlor when in bloom, will last in full beauty three to six weeks, and Mr. Rand exhibited a spike of *Oncidium luridum guttatum* from a plant which had been in bloom for six weeks, with more than two hundred flowers. Also a small plant of *Epidendrum machrochilum*, growing on a block of wood, as an illustration of the manner of growth of many orchids, and a fine plant of *Dendrochilum glumaceum*, which, however, is not a cool orchid, but one of the most desirable for its grace, freedom of growth, beauty of foliage, and delightful fragrance.

Cypripedium spectabile.—Mr. Rand said that though it might be grown in greenhouses, it is hardly worth while, since it does so well out of doors. It is a native of northern Maine and Canada, and perfectly hardy. He had had plants two feet high, with two or three flowers on a spike. It does well in peat soil; there is no better place for it than in a Rhododendron bed, and it should have plenty of water in summer. It is the finest of all our native Cypripediums.

Cypripedium insigne and *C. venustum.*—C. M. Hovey said: Pans are better for these, because in deep pots they are apt to get too much water. The pans should be well drained. He saw this plan first in the garden of Mr. Lenoir, in New Jersey. He had pans fifteen or twenty inches in diameter, containing plants with one or two hundred flowers each. Orchids must have special treatment, and hence they have not come into general cultivation. In England he found the orchid houses so reeking with moisture and heat that ladies could not possibly enter them. Cool orchids from Mexico will grow in greenhouses which are accessible to ladies.

Mr. Cartwright said that the treatment of cool orchids is very simple: give plenty of water and heat in the growing season. Keep *Dendrobium nobile* in a cool place, and you will always retain the foliage. Through the dormant season he keeps them on a bed of slightly moist sand.

Among the orchids which can be grown at all times is the *Phaius grandifolius*, which is as easily cultivated as the Calla. The *Cypripediums—venustum*, *insigne* and *barbatum*—are also easily grown in the greenhouse. He did not feel, as many do, that the yellow color of the *Oncidiums* was an objection. He would have a portion of yellow in every bouquet.

Garden Gossip.

Suggestive Notes.

As we write, our summer's flowers are in all their glory; the "foliage-plants" have assumed their gaudiest tints, the Dahlias, Gladiolus, and late-blooming varieties, are just opening out their flowers, while Verbenas, Petunias, Phlox Drommundi, etc., are still as showy as ever. It is in brief the height of the season, and consequently just the proper time to note the errors of commission and omission, so as to rectify them in the future. The gardener who cannot see where improvements can be made, where different plants may be wisely substituted, or more reliable species made use of, had far better change his business,—he has gotten beyond the horticulturist's most valued blessing—the pleasure of learning something new. Indeed this "change of base" every season constitutes one of the greatest charms in the pursuit. We tire of the same arrangement, and of the same set of plants; in fact we feel inclined to change every thing about our place, excepting the grand old trees, and they seem to grow in beauty with each succeeding year. In many sections of the country, this has been a peculiar season; very dry early in summer, followed by copious rains ever since. The consequence has been that our bedding plants have had a hard struggle for existence. Now, however, they are looking finely, excepting those which are rotting from an excess of moisture. Among the best is the

Coleus for Show.—Looking over an extensive collection lately, we were delighted to find a large plant of "*the Shah*" splendidly tipped with yellow on a crimson ground. It is, however, too variable for general use. The old standard kinds, *Princess Royal*, *Golden Gem* and *Verschaffelti*, are doing equally as well as ever before. Even *Beauty of Widmere*, which has not been recommended for bedding, is this season a marvel of beauty. The foliage appears flecked all over with tiny dots of yellow, white and pink, which added to its multiplicity of leaves, make it remarkably conspicuous. *Nellie Grant*, of the Philadelphia florists, is very golden and very beautiful, although it is another of the variable varieties that usually will not stand the sun. Whoever wants a real dark leaf for contrasting with the golden tints, should select *Columbia;* it is not brilliant, but simply very deep in hue.

Harrisii is one of the newer kinds, deep velvety crimson with a distinct yellow border. It is looking exceedingly brilliant at present. An old variety called *Laciniata*, with a bad reputation for out-door work, is this season one of the most showy. Its deeply cut leaves are elegantly dotted.

What have we after all that will exceeed the Coleus for brilliancy in bedding?

White-leaved Plants.—The excessively wet weather is leaving its mark on this useful class. Early in the summer they were especially fine, but the rains descended, and they did also. Now, after one has gone to no little expense and trouble to produce a beautiful effect on the lawn, or in the garden, to have unpropitious weather destroy the symmetry of our plans, is, to say the least, very provoking. Still white-leaved plants are an absolute necessity,—we cannot get along without them.

The best, although too strong a grower for all situations, is *Glaucium corniculatum*. Its beauty is enhanced by its peculiar grace, the leaves curve so evenly one over the other.

The next in point of excellence is *Centauria gymnocarpa;* a plant combining grace, silvery-whiteness, and a good reputation for reliability in out-door bedding. Alas, however, for this year; as it has blighted badly.

The various *Cinerarias* have done no better, and even *Artermisia stellarina* has followed suit in the general devastation.

The hardy *Stachys lanata*, that we thought nothing would injure, quite suddenly melted down as if it had received a sprinkling of boiling water. Our hopes too were centered on a beautiful ribbon of *Gnaphalium lanatum variegatum*, but it, as well as its near relative, *G. tormentosum* are looking too sick ever to recover.

But we are not discouraged, and by the time our beds are prepared next spring, these white-leaved plants will be just as popular as ever. One failure is not a certain test of the value of any class of plants.

Ornamental Vines.—We need more variety in our coverings for arbors and trellises, and it is not necessary to hunt over foreign catalogues to find such as will meet our requirements either.

There is the good old-fashioned Passion-flower (*Passiflora incarnata*), a native too, which cannot be excelled for beauty at this particular season. An old well-established vine will throw up numerous shoots, all bountifully supplied with foliage, and as we write, almost covered with its gay blossoms. Its near relative, the small yellow Passion-flower (*P. lutea*), another native as well, is a delicate little climber, with very pretty round-lobed leaves, and tiny little greenish-yellow bloom. It is neat, effective, and grows thriftily. Just now our staff-tree (*celastrus scandens*), is gorgeous with its orange-colored pods opening out, and disclosing to view the scarlet-covered seeds within. It is hardy, grows rapidly, and is exceedingly pretty, when in fruit.

The Grecian Periploca (*P. Græca*), will clamber to the tops of the tallest trees, and its brownish purple are quite ornamental; and then, too, it is so reliable that, when once established, we are forever after loth to give it up.

We might mention many more, but try the above first, and then, like Oliver Twist, if more should be needed, ask.

Perennials for Autumn.—The *Compositæ* are now in their glory. The *Asters*, just opening their flowers, are among the very best, and foreign gardeners think what unappreciative people those Yankees are, when nature has done so much for them, and men appreciates her endeavors so little. A collection of Asters are very beautiful; make a note of this, all who are skeptical.

The *Rudbeckias* are showy with their great flaunting yellow flowers, lasting until frost serves all alike.

Some of the *Eupatoriums* (especially *E. ageratoides*), we might say all, in fact, make a fine show.

The great coarse-growing *Vernonia Noveboracensis*, peeping up out of a group of shrubbery with its large cymes of purple flowers, is by no means to be despised. The *Liatris* family are every one handsome garden plants, that need only to be known to be highly appreciated. Even the *Golden Rods* are taking on a tinge of yellow, a reminder of the rich golden hue that will assuredly follow. Out west, the various species of *Rosin-Weed* or *Silphium* are gaudy, when in bloom, and their very coarseness is made an element of beauty, when associated with other so-called sub-tropical plants. Very many of the native *Sun-flowers* or *Helianthus* make excellent garden plants, and, though coarse in growth, the bright yellow rays of their flowers are very showy.

Shrubbery Cuttings.—Many amateur gardeners desire to increase their stock of flowering shrubs, but are unaware of the methods employed by professional florists to accomplish it. Just now is the best time, as the young wood is commencing to ripen, and before it gets too hard. Make a small heap of manure of sufficient size to receive a frame covered by a single sash. Shake the manure well and beat it with the back of the fork as the work progresses; two feet high will be sufficient. Place on the frame and heap around it to the top with more manure. Fill inside, say two inches deep, with spent tan-bark, sprinkle, and wait until the heat sinks to 95°. The sash should be raised slightly all the time to allow the rank steam to pass off.

Make the cuttings about three inches long, allowing only two leaves to remain on at the top, and trim these to one-half their length.

Have prepared shallow boxes with holes in the bottom, put in an inch of drainage, fill up with pure sand, and pound it firm. With a sharp-pointed stick perforate the sand, stick in the cuttings, and press the sand lightly against it. When filled, sprinkle well, and place on the hot-bed. Regulate the heat by a thermometer; from 75° to 95° being the limits. Syringe slightly once each day, but

do not water much, and only when absolutely necessary. When rooted, put off into good rich soil.

A New Shade Tree —We do not mean new to science, but new to our planters of ornamental lawns; and yet in many sections of our country it is quite common growing wild; we allude to the *Nettle-tree* (Celtis occidentalis). A near relative to the Elm, and not unlike it in general appearance, it has the advantage of the latter in producing edible fruit. True, these drupes are pretty much all seed, but the very sweet skin is pleasant to the taste, and carries us in memory back to our childhood days when we desired nothing better. In suitable soils it will form quite a large tree, and we know of a fine old specimen now standing in the yard of a noted botanist, together with a plant of its rough-barked variety (crassifolia), than which nothing in the vicinity can surpass them.

The common names of Sugar-berry and Hackberry are quite expressive, and we hope soon to see them in our nurserymen's lists, among other valuable native trees.

Special Fruits.—The practice of growing single varieties of fruits as specialties, is open to some objections, and has many excellent features to recommend it to cultivators. It is objectionable because the ripening season causes a multiplicity of work at one time, and if this should happen during the summer or early autumn, at a season when fruit will not keep sound for any length of time, a portion of the crop must be lost.

Then again, should the market be overstocked at that particular time with other fruits, no amount of care will preserve them for better times: they must be sacrificed.

But on the other side of the question there are so many practical advantages to be gained by selecting one reliable, popular kind, that we believe many of our fruit growers are gradually adopting it as the best system.

For instance, in some sections of Pennsylvania, peach growers have selected the Crawford's Late, and planted large orchards of it alone; and as it ripens there, after the same variety in Delaware and Maryland have been exhausted, the consequence is the market is comparatively free for a first class peach to rule. Other facts in connection with the increased size and appearance of the northern specimens also add additional weight in its favor, and the result proves that by concentrating all the capital on this alone, a larger per cent of profit has invariably arisen.

Take also, as an example, the Smith's cider apple, a variety that is pleasant and juicy, but very far from first class, but which owes its great popularity in some sections to its immense crops of showy fruit regularly every year.

In Bucks county, Pennsylvania, as well as in the western states, we find the men who have planted it alone for market, are among those who are making the most money from fruit. And why? From the simple reason that they have selected in the first place an apple that they know will always do well in their special locality, and so have centered all their labor on it alone, instead of clogging their operations with dozens of kinds, better flavored to be sure, but which will only produce well once in awhile.

This same rule works well with small fruits also. One acre of Wilson's Albany strawberry will pay a far larger profit, than if several kinds had been planted on the same ground.

This is not mere theoretical reasoning, but the result of actual experience, aided by close observation for many years.

They have a way in California of counting up their profits so as to nearly take away one's breath. One of the latest accounts in the fruit line, tells about orange culture, and the immense returns from this branch of industry.

Near San Gabriel is an orange orchard of five acres, and it contains 500 trees. From this grove the owner sold last season, $15,000 worth of fruit, the purchaser picking the crop. This we call pretty nearly clear profit, as the cultivation all told would not

greatly exceed that of a pear orchard, and three thousand dollars per acre, per annum, is a temptation that our northern fruit growers will not be able to resist, if they can make it convenient to dispose of their own blighted plantations, and so go into orange culture in the El Dorado.

What an improvement has been made of late years in the matter of dried flowers! The old-time favorites, great gaudy Marygolds and sprigs of Asparagus are no longer tolerated, excepting in those homes where the Agricultural and Horticultural papers are never taken.

The introduction of the French *Immortelles*, at once places in the hands of every person of taste, the means by which he or she can decorate the living rooms with all the bright colors of the garden. And then by the insertion of a few sprigs of ferns, grace is added to beauty, and the basket or rustic vase neatly filled needs no more attention (excepting an occasional dusting) the whole winter long.

How it makes one's mouth water to read about successful fruit orchards. A case in point is the largest plum orchard in the world, way up in Oregon. The owner, Dr. W. H. Watkins, of Portland, tells the *Country Gentleman* that he has a three-year old orchard which contains two thousand trees of the Peach Plum, five hundred of the French Prune, and fifteen hundred German Prunes.

As a specimen of productiveness in plums in this wonderful climate, the writer states that trees of the Peach Plum, twelve years old the past season, bore four hundred pounds; that every variety ever tried there, bears in abundance—the trees breaking down under their loads of fruit, and the *Curculio* unknown.

Many plants heaved by frost die when by a little timely oversight they might readily be saved. Just so soon as the frost is out and the soil begins to settle and feel firm to the foot all small plants should be gone over and pushed down to their natural position. Strawberries in some soils heave badly, and if not attended to in time will inevitably die, or at least be so much injured as to prove comparatively worthless during the fruiting season. Beds of hardy perennials need this watchful care early in spring, for not unfrequently, even if properly protected, they will be found raised up out of the soil. By waiting until the plants have made some growth one runs considerable risk in thus disturbing them; but even then it would probably be better to push them down than let them remain in a stilted position.

Jean Sisley, the eminent horticulturist of Lyons, France, announces the production of a distinct hybrid between the ivy-leaf and zonale geraniums. The habit is procumbent after the manner of the former, while the foliage and flowers resemble the latter. The truss is composed of fifteen or twenty brilliant red pips, and is remarkably distinct. As this curious variety has seeded freely, we may soon look for a distinct race of geraniums that must certainly prove valuable for bedding purposes, as well as for vases and hanging baskets. A peculiarity of this acquisition is that, as intimated, it seeds freely, while the various forms of the ivy-leaf geranium rarely produces any seed.

Several of the foreign periodicals are speaking in the highest terms of the *Abutilon Darwinii*, a novelty recently exhibited before the Royal Horticultural Society in London, by the Messrs. Veitch. Its most distinctive and valuable feature is its mode of growth, which, unlike that of the other members of the genus, is dwarf and compact. In other respects it is somewhat similar to the old *A. striatum*, although of a deeper shade of orange in the color of its flowers. It is also said to be quite precocious in its flowering, as the bloom appears when the plant is only a few inches high. Its value as a pot-plant, and for bedding purposes, where the above good qualities can have full scope, will doubtless be fully tested in our climate.

Gardening.

Geraniums—Their Culture and Varieties.

BY WILLIAM GRAY, JR.

[From a paper read before the Massachusetts Horticultural Society.]

THE subject proposed for discussion to-day is the Pelargonium, and first I shall take the tricolored section. Whoever can grow these well will have no difficulty in managing the others, and, I think I might add, all other kinds of plants requiring, as they do, perfect drainage, pots not too large, and the greatest care in watering; in fact the last point is the critical test of a gardener. A man who can water plants with judgment has little more to learn in his profession.

Tricolors have been in such demand in England that every shoot, as soon as it appeared, has been taken off for striking, and the result is that the parent stock has been enfeebled, and in many cases killed outright. The young plants go through the same process, and, until the supply overtakes the demand, and the price falls, there is no chance of getting them of any strength. In my experience, about one-half have died on the voyage here. If they arrive alive, they should be shaken out, put into small pots, which should be plunged in spent hops, and watered with extreme care until they begin to grow. If you are fortunate, in a year from the time they come you can get one good cutting from each, and these cuttings properly treated will make good plants. The imported plant, from its weakness, and from becoming hard and stunted in its early growth, cannot be depended on to make a good specimen.

In March take the cutting off, strike it in mild bottom heat, and as soon as rooted, put it in a two-inch pot, to be plunged as before. Shift it from time to time by small shifts, as the pots get filled with roots; the point can be pinched out when the first shift is made. Never let it get a check until it is time to give it rest, which will be about the middle of June; then gradually withhold water to ripen and harden the wood, and about the middle of August shake the roots entirely out, and pot in as small a pot as will hold them without much cramping. The plants are benefited by being out of doors during June, July and August, but should be kept plunged to prevent evaporation, and sashes should always be put over them in wet weather; care should also be taken that worms cannot get into the pots. Tricolors do not keep their bright color, and do well without this season of rest.

For soil I use two parts loam (pieces of sod with the grass just dead, when I can get them) in as rough a state as possible, one part thoroughly rotted manure, and one of coarse sand. I keep all soil for potting in small heaps, or in ridges about a foot high and eighteen inches wide. It has always seemed to me a mistake, after taking the pains to get the best of the top soil of a pasture for this purpose, to stack it up, as is often done, four or more feet in height in large, compact masses, that it may lose exactly the properties gained by its long exposure to air and light, which give it so much of its value.

Training should begin in the second year, and consists merely in bending down and tying the shoots close to the rim of the pot, and occasionally stopping a gross one. The centre soon fills up, and the foundation of a specimen is laid, which, with but little care, will increase in size year by year. I have found small lead weights, hung to the shoots, an effective way of keeping them down after they have grown beyond the rims of their pots. More care is necessary in tying out bronze and green pelargoniums than the tricolors, as the growth is stronger and more brittle. Here again weights are useful; by beginning with light ones, and replacing them by degrees with heavier ones, the branches are gradually brought into place without breaking. Another advantage is, that all the weights can be removed when plants are wanted for exhibition, and they can be shown without the defacing sticks and ties which often accompany them.

To sum up: in order to have good tricolors, it is necessary to start with a strong cutting,

to grow it in a night temperature of about 50° in winter, rising to 60° in the day-time by fire heat, and to 75° or higher by sun heat, with plenty of air; to give repeated small shifts; to be careful in watering and training, and to see that it has a rest of a couple of months in each year. The water should be at least as warm as the house, and ten degrees higher will do no harm. The flower buds should always be cut off as soon as they appear.

I can add but little in regard to the other classes. They need more water, rather a stronger and more firmly packed soil, and will do fairly well under treatment that would kill the more delicate tricolors. They should have their annual rest, and be shaken out and repotted, but larger shifts are safe for them. The flowering ones should be pinched from time to time, and if a full bloom is required, it will help them much to take off the flower buds until from six weeks to two months before the time at which they are wanted. All pinching of shoots should be stopped at least ten weeks before the plants are required to be in perfection.

The best golden tricolors are Achievement, Ealing Rival, E. R. Benyon, Howarth Ashton, Lady Cullum, Lady Sheffield, Lucy Grieve, Macbeth, Miss Batters, Miss Goring, Mrs. Dunnett, Mrs. Grieve, Mrs. Little, Mrs. Turner, Peter Grieve, Prince of Wales, Princess of Wales, Reynolds Hole.

The best silver ones are Eva Fish, Excellent, Lady D. Neville, Lass o' Gowrie, Mrs. Clutton, Mrs. Laing, Princess Beatrice.

The difficulty of getting a flat leaf in this class, from the fact that the green centre grows so much faster than the white edge, has seemed insurmountable; but a plant has been lately sent out by Mr. Morris which is claimed "to be the nearest approach to perfection of any yet introduced," and, from seeing it in its young state, I think the claim well founded.

The best bronzes are Black Douglas, Chieftain, Earl of Rosslyn, Emperor of Brazil, Maréchal McMahon, Mrs. Harrison Weir, Mrs. John Lee, Prince Arthur, Reine Victoria, Rev. C. P. Peach, W. E. Gumbleton, W. R. Morris.

The flowering Zonales are so numerous that it is difficult to make a selection, but the following are the best that I have tried in their respective sections:

Round-flowering scarlets—Beauty of Waltham, Cœur de Lion, Coleshill, Congress, Corsair, Diana, Emily Morland, Hospitalité Suisse, Incomparable, Lord Derby, Lord Mayo, Majestic, Mercy Grogan, Omega, Orbiculatum, Rev. A. Newby, Sir Charles Napier, Sir John Moore, Tyersall Rival, Vanguard, Vesuvius.

Scarlet, shaded with rose—Æstival, Christian Deegin, Circulator, Crystal Palace Gem, E. J. Lowe, Florence, Professor Lawson, Renown.

Scarlet, shaded with purple—Ianthe, Madame Mezard, Peabody, Shade of Evening, T. Hammersly.

Salmon scarlet—E. S. Dodwell, King of Roses, Paul Brie.

Pink—Master Christine, Mrs. Keeler, Rose Rendatler.

Salmon—Acme, Albert Grevy, Gloire de Corbeny, Madame Jean Sisley, Polly King, President Thiers.

White—Mme. F. Hoch, Mrs. Sach, White Clipper, White Princess, White Wonder.

White, with rose centres, the loveliest class grown—Alice Spencer, Madame Werle, Marguerite Panton, Miss Gladstone, Remus, The Bride.

Of Hybrid Nosegays, which have been making great strides of late, the best scarlets are Dr. Muret, Emilio Castelar, Jessica, Sunshine, Wellington.

Rose—Caven Fox, Cherry Lips, Florence Durand, Lawrence Heywood, Mrs. Masters.

Pink—Christine Nilsson, Delight, Lady Belper, M. E. Buenzod, Mrs. F. Burnaby, Pink May Queen.

It has been questioned whether much further improvement is to be expected in these various classes. It may be slower than in the past few years, but I think in the hands of such careful growers as Dr. Denny, Mr. Pearson, of Chilwell, Mr. George and many others, it is sure to come. We may never see a more dazzling scarlet than Jean Sisley, a plant of

better habit than Orbiculatum, or of finer foliage than Mme. Werle; but until these various excellencies are all combined, by careful breeding, in one variety, I think it safe to say that the limit has not been reached.

Bedding Pelargoniums.

It has been the custom in England to separate those suitable for bedding from those best adapted to pot culture, and I suppose with good reason; but if desirable there, I do not think it so here. They use largely the narrow-petaled nosegay section, of which Waltham Seedling and Violet Hill are types, keeping the round-flowering zonales and the superb hybrid nosegays for cultivation under glass. Doubtless these two kinds, with Vesta, Star of Fire and many others, will make a more brilliant show in some one week of the summer than any other class, but in our climate it is at the expense of the rest of the season. I prefer to use kinds less free, but more constant in their flowering, of which the flowers are perfect in form and color, and have found that some of the best for pots are also the best for bedding.

Orbiculatum, Sir John Moore, Coleshill, Wellington, Douglas, Pearson and Sir Chas. Napier are the best among the scarlets, and to these must be added, for large beds, General Grant. For pinks I recommend but two—Master Christine and Pink May Queen.

There are no white-flowering varieties fit for bedding, but their place is well supplied by the white-edged Albion Cliffs, which is far in advance of any yet tried by me.

In the golden-leaved section, Crystal Palace Gem still holds the first place.

Of bronzes, the Moor is the best; Harold, the Earl of Rosslyn and the Marquis of Lorne are next, but at a long interval. The others which have been tried by me, and which can stand our sun, grow too strongly and "run to green."

There are no silver tricolors worth growing for bedding. Of the golden ones, Mrs. Pollock is the best, perhaps because that kind is plentiful and cheap, and has had a chance to get some strength; partly also, I think, owing to the light color of its leaf, which enables it to stand the sun better than those with darker zones.

A single word about arrangement in planting. I think the simpler the form of the beds, the better, and that, if small, they should be filled with plants of a single kind. If large, they should have an edging of another kind, of a different color; or of a different plant, such as golden pyrethrum, variegated alyssum, or a dwarf coleus like the Emperor Napoleon.

[*From La Revue Horticole, March 1st, No. 5.*]

Irrigation of Plants by the Wick Syphon.

BY PAUL HAUQUEL.

THE Horticultural Society of Sauvie, near Havre, has published in its *Bulletin* and in the *Almanach of Practical Horticulture* an article entitled "Syphon Léchaud," the name of the apparatus which we reproduce here under the name of the *syphon-mèche* (wick syphon), which, as we shall see further, is the name which properly belongs to it. The following is the manner of forming this syphon, and the mode of using it:

Take any pot, vase or earthen vessel, bucket, etc., fill it with water, and place it at an elevation several inches above the level of the earth; then plunge in this vase an ordinary lamp wick or long strip of cloth, of which one end is in the liquid, while the other is directed to the root of the plant which we desire to water. This syphon, which is based on the well-known phenomena of capillary attraction, has not been invented by M. Léchaud; it is, on the contrary, very old, and is frequently employed in medical practice (continuous application of cold water thus applied in the surgical wards of the hospitals), in order to replace glass syphons. It acts in virtue of the same principle of capillarity which raises the oil in the wick of a lamp, and that causes liquids to penetrate wood, sponge, and the same of all bodies possessing pores sufficiently developed. When we say that this system is not the invention of M. Léchaud, we do not doubt the good faith of this savant; but what

astonishes us is, that having traveled much in America and England, he had not seen this process employed by our neighbors across the water, where it has been known in horticulture since the commencement of our century, and published in an English treatise on "National Irrigation," by William Totham, and translated in a French work, *La Bibliothèque des Proprietaires Ruraux.* From this work we extract the following: "Some years since, during a dry summer, I was led to examine what was the mode of action produced by watering plants with a watering pot, and to observe the effects on the soil and plants in their growing condition. I have observed that this method, practiced toward sunset, had generally a good effect upon all kinds of soil, and produced the next day morning an agreeable and pleasant dew or moisture upon the plant and foliage; but that, if the watering was done at a much earlier hour, that is, during the heat of mid-day, and even in the morning, it baked the earth and arrested the progress of vegetation, and even appeared to depress the vital principle. An excellent method is to stir the soil often, whether the weather be either dry or humid.

"But the best means of supplying the want of rain not being yet discovered, the difficulty was to supply the regular and successive demands of vegetation in a dry season, in replacing in a just proportion the substance evaporated from the earth. Water being the natural aliment assigned for this purpose, in its simple condition, I then had recourse to the experiment of a syphon made of twisted cotton (*coton tors*).

"I selected two melon roots placed near each other in the same soil. One was in a more flourishing condition than the other. I tried my experiment with the least vigorous, in making with candle-wick a syphon proportioned to the stem of the plant. I then placed a pot filled with water above the surface of the earth, and protected it with the end of a plank from the burning heat of the sun.

"Having moistened my syphon in order to give movement to the fluid, after the principle of a simple fountain, I attached to one end a little stone to serve as a weight to plunge the syphon in the water. I placed the other end in the soil, separating carefully the earth from the root, and giving to the syphon a spiral direction about the root; afterwards I covered it with the displaced soil. In a very short time the earth became moderately moist several inches around the roots; it remained in this condition during all the heat of the day, without baking (*brûler*) and without cracking. The syphon satisfied the needs of the plant, and no more. The freshness was sustained in spite of the evaporation; in a few days the root of the melon became flourishing, and surpassed that of its neighbor."

I have repeated this experiment, and always with the same success; it is only necessary to say that this could be done on a large scale. In reproducing this article, we have thought it might be useful to the readers of *La Revue Horticole* in acquainting them with a method of irrigation little extended among us, and which we are convinced can be utilized to great advantage.

Montiviliers, France.

Garden Pests.

THE *Gopher* will not usually touch other seeds if he can get that of the squash or melon. In fields of these, if unmolested, he will often take the seed from acres without missing a hill. The gun, of course, is some help, but the only sure remedy is to soak all of the seed in a solution of strychnine twenty-four hours before planting, and also scatter some on the top of the ground. This diet does not seem to agree with him.

Striped Bug, or *Cucumber Bug.*—After trying many methods, I find nothing so cheap and effective as to keep a close watch, and as soon as the bugs appear, scatter wood ashes over the vines, either by hand or with a dredging box made for the purpose. To the Hubbard and other winter squashes it should be applied both on the upper and under surface of the leaves. It is important to begin hostilities as soon as the bugs seem to determine up-

on a point of attack; and in order to confuse them—and it does assist greatly to distract their attention, and sometimes they quit in dismay even at this—whenever crossing the field, I find they have begun operations, I at once scatter over them fine pulverized dirt to answer until some ashes and a dredging box can be brought to the front. Employing these means with promptness, I have rarely lost an acre of vines from their ravages, though I can boast of as many billions of bugs to the acre as any man on this continent.

Cut worms.—If balls of fresh clover or other green grass be scattered throughout the field, the cut worms are said to be attracted to them and crawl into them, where they can easily be destroyed. But this cannot be entirely effective, especially on sandy land badly infested, and close watch must be kept; and whenever traces of their work are seen, they must be dug out and killed. With early tomatoes and other early crops which would justify the expense, I have saved the crop by scraping away the dirt at the surface, and applying from a pepper box Paris green mixed with flour or plaster. Under this treatment, though many plants are attacked, yet little damage is done. Tomatoes in particular, when eaten half off, do not seem to suffer much from it.

Colorado Potato Beetle.—A tablespoonful of Paris green in a ten-quart pail of water, applied with a fine rose sprinkler having but half the usual number of holes, is at once the cheapest, most effective, safe and lasting method of applying poison. Two applications usually answer for the season.

Cabbage or *Turnip Flea.*—This little pest often eats off the young plants so soon after it breaks through the surface, that if close watch has not been kept, an inexperienced person would believe the seed had never grown. An application of ashes scattered highly along the rows, at the earliest possible moment, will generally save the crop.

In extensive field culture of turnips, immediate resowing of the crop as soon as the loss is discovered, is perhaps the best course.

To be sure of cabbage plants, the only safe course is to make several sowings a few days apart.

Worm-eaten turnips are due to their growth on old soils. Ashes scattered along the rows at the time of sowing will often prevent, but new soil, not more than two years from the sod, is always to be preferred.

Woody and tough radishes occur on soils so heavy that roots have not made a thrifty growth. The early varieties should not be sown after the middle of May, but the summer sorts instead.

Lice in cabbage are usually due to a slow growth, either on account of poor soil, drouth, or other causes, and can better be prevented than cured. An application of a pinch of salt to each head often proves of service; but plenty of manure and liberal and constant use of the hoe and cultivator are the best preventives.—*Root's Garden Manual.*

Color Arrangements.—A few simple rules in the arrangement of flower beds will materially enhance the effect produced. Among these are:

1. Avoid placing rose-colored next to scarlet, orange or violet.

2. Do not place orange next to yellow, or blue next to violet.

3. White relieves any color, but do not place it next to yellow.

4. Orange goes well with blue, and yellow with violet.

5. Rose color and purple always go well together.—*Canada Farmer.*

New Rose—E. Y. Teas.—M. Eugene Verdier, of Paris, has named one of his new roses after this well known Western rose-grower, and thus describes it:

"Hardy, with short, straight shoots of a delicate green; flowers globular, very large, full, and of very perfect shape, of a rich, showy, deep cherry-red."

A Large Cucumber.—A "Marquis of Lorne" cucumber has been grown that measured *thirty-six inches* in length.

Fruit Culture.

Notes on Pears.

By Captain Snow, to the Maryland Horticultural Society.

Seckel.—I don't think there are two varieties of *Seckel*, having seen the size nearly doubled by manuring and thinning on my own trees. Difference in soil and culture may so change the appearance and size of the fruit as to lead to this impression. A lady on a visit to the writer some years since was handed a waiter of this fruit from a tree to which had been applied a cart-load of manure the preceding winter. The fruit, gathered a week, had been placed in a wardrobe to ripen; its color was less russet and more yellow than is usual, and she exclaimed: "they were double the size of her Seckel (of which she had five or six trees in full bearing), and of a different color." Two years after this the same tree yielded six boxes of small fruit similar to other Seckel. We do not regard the fruit here as valuable for market, and it is ripe with us too early, and decays too rapidly, to be of much value even for family use. Often we cannot sell, and it is used for pickles and preserves. We might dry them whole, as the French dry pears.

Duchesse d'Angouleme.— Succeeds well both as *dwarf* and *standard* here, but the trouble is that it *ripens too early* for the New York and Boston markets. Extra fine boxes, carefully handled and skillfully marketed in New York, pay well. The trees set as dwarfs bear more than double the fruit they can mature, and unless well thinned and the trees manured, they do not recover from the shock of over-production for two years.

Bartlett.—On high, dry sandy loams, the standards do admirably here, grow well, produce early, and we don't find them subject to blight. On what some persons consider good soil for pears—stiff soils with clay in excess, or any soil not well drained—it blights badly. Taking all things into consideration, even although it has to contend with the peach market, it is one among if not the most profitable pear we can grow. In a series of years the same number of trees will produce nearly double the number of boxes of market fruit than those of any other kind, and we can afford therefore to grow it for *less money* than any other.

Sheldon.—A few trees only, in full bearing, bore very heavy crops two years since, well ripened from the tree, as Captain Snow remarks "all pears should be." A very good table pear; no experience with it in market.

Lawrence.—Healthy tree; bears well after it *once commences*, but as a market fruit with us is not valuable, simply, I presume, because the Boston people have a particular time for eating these fall pears, and those grown here come to them *not in their season.*

Howell.—A very healthy tree as standard and dwarf, fruiting quite early. One of the most beautiful in form and color of the twenty-seven kinds contained in the fruit garden and orchard. It is ripe for shipping with me at the same time with Edmonds, Belle Lucrative and Parsonage, and all are frequently shipped with Bartlett. There has been no blight with Belle Lucrative here.

Clapp's Favorite.—Good; an ugly grower after fourth year; no experience with the fruit yet in market.

Manning's Elizabeth—Not *Rogers'*. — I have a few trees on the quince and don't want any more. It is a miserable little half russet round thing, not much larger than the little Doyenne d'Ete and only a little behind it in ripening. The only use of this summer Doyenne is to give early ripe pears to the children.

Beurre Diel.—The tree grows very large and rapidly on the quince; some five or six in the fruit garden, ten years old, are nearly twenty feet high. The fruit sets full every year and all goes on well until August, when there comes some leaf and no wood blight. I don't think any of the trees have lost limbs, but the leaves turn black and drop and consequently the fruit does not mature well. There is no cracking, but a drying up and shriveling, hence the trees are of no value here.

Jaminette.—Healthy tree, beautiful in form, rapid in growth, fruits every year, about September—the second week. The pears blotch, have dark sooty spots and crack open.

Vicar of Winkfield.—Grows well; has disappointed me in bearing.

Beurre d'Anjou.—Very handsome, rapid growing trees, both standard and dwarf. Fruit very fine to eat when properly matured. No experience with it yet in market, but a friend in my county has sold it well in Boston, several times.

Beurre Superfin.—There are four trees of this kind in the fruit garden which have yielded two full crops of nearly a box each; don't remember to have ever tasted one. It has been gathered with Howell, Parsonage and Belle Lucrative, and I have not a word to say in its favor.

Louise Bonne de Jersey.—Healthy tree and good grower on its own roots and quince up to bearing, then if on quince and not thinned to about half the fruit it sets, will break the tree down very much like the neglected peach trees of farmers. The fruit with me, even when trees are thinned, is small—much smaller than I have seen in Europe or grown near Boston—and its rough, bitter, tough skin, as Captain Snow remarks, makes a poor table fruit *with skin on.* Have regarded it with so little value that all the trees I have are in process of conversion into *Hosenschenck*—Moore's White Pound. This we regard in this neighborhood as *par excellence* "the market pear." It is about eight days in advance of Bartlett. As large or larger than its competitor, smooth, turning white with a yellowish cast when ripe and sells well. The parent tree, now over forty years old, came from a nursery near Baltimore. It grows on the quince well, but none have yet failed with me on the stock. Takes its name from "Big breeches" Schenck of Pennsylvania, on whose place it originated.

Beurre Giffard.—Find, as Captain Snow states, it does not do well on quince; bears its fruit in twos and threes on the ends of the branches, and their weight causes it to bend to the earth. We regard it as *our largest very early pear*, ripe here fourth of July. I have not found it to *rot* at the core. Gathered just as it is turning, and placed in empty hives in the apiary, it has colored up and proved very enjoyable by the ladies of the household.

Flemish Beauty.—There are about twenty in the orchard of standard and dwarf; don't want any more; shed their leaves; are as naked as winter trees in August; make feeble attempts to leaf out again in September, after rains.

Beurre Clairgeau also disappointed me; four trees came into bearing quite early, and the fruit was so large and fine, twenty-five more were added with the order for Bartletts. The next year the trees began to shed their leaves when the fruit was three-fourths grown, and the fruit spotted so badly that it was unfit for market.

Swan's Orange.—Very large, coarse pear of little value here for family or market; rots at the core badly, even before ripe enough to eat. Tree blights badly—only one of the four remains.

Early Catharine.—Not quite as large as Bartlett; season about the same. I prefer Bartlett.

Boykin's June.—A very early and very good small pear, bears well and quite often profitable for shipping; originated, I believe, in Isle of Wight county, Va.

Sugar Pound.—Very large, early, coarse pear, not good for market; wants color. A healthy tree and vigorous grower.

Doyenne Boussock.—The few trees I had on quince blighted and are gone, and did this in the same row on similar soil when others were healthy. Captain Snow's remarks about blight *on seedlings*, where budded trees escape, accords with my experience—I find suckers from the roots of *healthy* Bartletts springing up some distance from the body of the trees have *blighted, been killed* during past seven winters, and I am sure, from recent thorough inspection of every tree, *there is no indication* of *blight* in the whole orchard. In the nursery there are several hundred pear seedlings, nearly all budded past summer. On cutting the stocks above the buds a few days

since, found a number of the seedlings had died since the *fall.*

In conclusion, permit me to express my entire disapproval of the proceedings of the United States Pomological Society's method of valuing or giving *stars* to varieties of fruit. Each state should have its committee of fruit growers residing in *different* sections; and *notes* on *fruit*, their success in every respect, as regards health of trees and fruit value for family and market, should be presented to the chairman for his correct written report. Such a report would be interesting and valuable. What are we to make of this? The name of a certain fruit is called a peach, pear or apple, and Mr. Smith rises, *three stars* for Virginia for the fruit named! Now, where does Mr. S. live in Virginia? In Tidewater, Piedmont county, or the Valley of Virginia? And how many fruit growers know about their stars? NANSEMOND.

Exchange, Va.

Note by Editor.—The American Pomological Society no longer give stars to fruit unless recommended by a competent committee from each state. No individual can alone order or remove a star given to any variety, and all remarks at discussions are now referred to the chairman of the general fruit committee, Mr. P. Barry, who acts according to best judgment, and is in constant correspondence with the fruit committee appointed for each state.

Fruits—Nomenclature.

Report to Western New York Horticultural Society, 1875. By CHARLES DOWNING.

Kaign's Spitzenberg and Long Red Pearmain.

HAVING been of the opinion for some time that there was an error as to these apples being identical, I have spent much time to ascertain if it was so or not, and have come to the conclusion that they are two distinct kinds, and that the fruit books so far as I know them have made a mistake in giving one a sign of the other. Downing in his second or last revised edition has fallen into the same error. The description of Kaign's Spitzenberg, except as to origin and growth of the tree, answers to that of the Long Red Pearmain, a variety known in many portions of the west under various names, but no author that I am aware of gives its origin. I have made inquiries of many pomologists and fruit growers without success, until lately a friend informed me that the Economites at New Harmony, Ind., some time after taking possession of their property, some fifty years since, discovered a strong seedling tree, near a mud-hole, bearing fine apples, and gave it the name of "Mudhole," and this is probably the origin of the Long Red Pearmain, as upon a close examination these two last appear indentical. Many years since, I obtained grafts from different persons, in various localities at the West, under the following names: Long Red Pearmain, Red Permain, Kaign's Spitzenberg, Long John, Striped Pearmain, Park, etc., all of which were in fruit the past season, and were identical, besides specimens of all the above varieties have been sent me during the past season, also Wabash Bellflower, Pound Royal of Indiana, etc., and all prove to be the Long Red Pearmain.

The following are the names to Long Red Pearmain, so far as I have been able to find out:

Red Pearmain; Kargie's Spitzenberg, incorrectly; Long John; Red Spitzenberg; Striped Pearmain; Lady Finger, incorrectly; Winter Pearmain; Long Pearmain; Red Winter Pearmain, incorrectly; Scarlet Pearmain, incorrectly; English Pearmain, incorrectly; Red Bellflower, incorrectly; Red Pippin; Red Phœnix; Pearmain; Kentucky Gillflower; Kentucky Bellflower; Sheepnose of same; Hudson Red Streak; Wabash Bellflower; Russaw; Park, not of Kansas; Mudhole; Pound Royal of Indiana.

The true Kaign's Spitzenberg is a distinct variety, and has no syns, that I know of. This apple was first described by William Coxe in his work on fruit, in 1817, also by A. J. Downing in his first edition of "Fruits and Fruit Trees" in 1845. I received grafts of this variety from the Coxe orchard about

thirty years since, which was in bearing the past season on the same grounds with Long Red Pearmain, which gave me a good opportunity for comparison, and am satisfied they are distinct.

I do not consider either Kaign's Spitzenberg or Long Red Pearmain of much value now that we have so many better kinds, the object being to correct mistakes. If I am not correct as to the history, etc., of the above two apples, will some person who is better posted give us some light on the subject?

Synonyms, January 7, 1873.

Aromatic Calville	syn. to Aromatic Carolina.
Black Spitzenburgh	Flushing Spitzenberg.
Black Ann	Black Coal.
Boston Pippin	Golden Pippin.
Belle Rose	Primate.
Conic June	Kirkbridge White.
Capps Mammoth	Gloria Mundi.
Cranberry (incorrectly)	Black Coal.
Early Washington	Sops of Wine.
Early Baldwin	Primate
English King	Alexander.
French Pearmain	Autumn Pearmain.
Flat Vandevere	American Pippin.
Highland Pippin	Primate.
Hoover	Black Coal.
Jersey Pearmain	Autumn Pearmain.
Jenkins Summer Pippin	Primate.
Large Summer Pearmain	Buckingham.
Lodge's Early	Summer Rose.
Moore's Shanty	Moore's Sweet.
Mountain Flora	Gloria Mundi.
Montgomery Sweet	Autumn Sweet Bough.
Pound Royal (incorrectly)	Lowell.
Ryerson	Primate.
Russian Hagloe	Summer Hagloe.
Shelborne Sweet	Spice Sweet.
Shropshirevine	Sops of Wine.
Virginia May	White Juneating.
Yellow May Pippin	" "
Tennessee Early Red	Early Strawberry.

Synonyms, January, 1874.

Byfield	syn. to Rock Sweet.
Broad Apple	Pennock.
Green Sweet of Indiana	Victuals and Drink.
Hoover's June	Yellow June.
Juniata	Washington Strawberry.
Jennings	Porter.
Jewett's Striped	Jewett's Best.
Kingsbury Russet	Pumpkin Russet.
Marilandica	Early Harvest.
Kentucky Gilliflower	Long Red Pearmain.
Queen of the Dessert	Newtown Spitzenberg.
Robinson's Streak	Ben Davis.
Rittner	Jackson.
Rolfe	Macomber.
Rock Apple	Lansinburg.
Red Cheek Bellflower	Ewalt.
Striped Shropshire	Sops of Wine.
Williamson	Domine.
Welch's Spitzenberg	Red Canada.
Waddell Hall	Thackley.
Washington of Maine	Washington Strawberry.
White Water Sweet	Wells Sweet.

Additional Synonyms, January, 1875.

Bonford	syn. to Pryor's Red.
Early Congress	Gravenstein.
Fox Apple	Amer. Golden Russet.
Fay's Russet	Hunt's Russet.
Farmer's Profit	Hubbardston Nonsuch.
Green Winter Pearmain	Autumn Pearmain.
Golden Russet of Mass	Hunt's Russet.
Hoover	French Pippin.
Hare	Summer Sw't Paradise.
Heike's Summer Queen	Early Pennock.
Jefferson Pippin	Rawle's Genet.
Kennebec Seedling	Winthrop Greening.
Limber Twig Russet	Golden Russet of N. Y.
Logan's Northern Pippin	Minkler.
North Carolina Vandevere	Horn.
New England Russet	Hunt's Russet.
" " Golden Russet	" "
Potter's Early	Knowles' Early.
Pound's July	Large Yellow Bough.
Red Harvest	Carolina Red June.
Russet Pearmain	Hunt's Russet.
Weidner	Early Ripe.
Wakeman	Baltimore.
Yellow Summer Pearmain	Porter.

Manure for Orchards.

TREES selected for the orchard, as a general thing, should be *free growers*, but some are not naturally so; and to these the arts of culture are to be more particularly applied. If the soil is not already rich the young trees should be manured *every year* moderately in some way.

The compost of bone and ashes is excellent, supplying, as it does, potash, lime and other elements needed for fruit-producing trees. A compost of swamp muck and well-rotted barn-yard manure is also excellent to push young trees.

When an orchard begins to bear, a compost of the following proportions is recommended by good authority: "To each barrel of dry ashes put two bushels of bone dust, eight quarts of common salt, and, if obtainable, four quarts of iron scales (peroxyd of iron). These ingredients should be well mixed and the mass saturated with water in casks or tubs. Let it remain until well decomposed; then turn out, shovel over and mix with five times its bulk of good swamp muck, leaf-mould, road scrapings or a mixture of these. A bushel or less of this mixture, according to the size of the trees, evenly spread around as far as the roots extend, will cause the production of the finest, high colored, delicious fruit." This is especially intended for the apple tree; but, if judiciously applied, will have a marked effect on the pear, peach and other fruit trees.

Mulching newly planted trees is very advantageous in case of drought, and the mulch should be applied immediately after a good rain in June.—*J. Fitz, in American Farmer.*

Window Gardening.

Insects on House Plants.

IN response to numerous inquiries we purpose to give a little more in detail than we have previously done, a description of the insects particularly injurious to house plants, show the best way to prevent their attacks, and the most approved means devised for their destruction. In general, we may remark that considerable heat and dryness of atmosphere are necessary for the hatching of insects. All have noticed in cool summers, or in a season when frequent showers occur, our common grasshoppers are scarcely noticed; but if a drought happens, then they come in full force. The same principle applies to plants in the house. Those who give their plants plenty of water by syringing, spraying and bathing, will not be very much troubled with insects.

The "green-fly" every plant-raiser knows, and he knows, too, to his sorrow, how destructive it is if left to itself. The plants which this insect attacks are the softest and most succulent, and at the ends of the young shoots and the softest leaves it sucks the juices so as materially to injure the plant in a short time. The insects of this kind (*Aphis*) increase with such wonderful rapidity that Reaumur has proved that in five generations one aphis may be the progenitor of six thousand millions, and there may be ten generations in a year.

The insect inflicts the injury by means of a long rostrum or beak, through which it sucks out the juices; the rostrum, when not in use, lies inflected beneath the breast. Their bodies, at the hinder extremity, are furnished with two little prominent or knotty openings, from which exude almost continually little drops of a sweet or honey-like fluid. As they take in great quantities of sap, they would soon become gorged if they did not get rid of the superabundant fluid. The leaves and bark of plants much infested by these insects are often completely sprinkled over with drops of this sticky fluid, which, on drying, becomes dark-colored, and greatly disfigures the foliage.

Of all the means that have been employed for the destruction of this insect, that which has proved most efficient, and the one now almost universally practiced, is fumigation with tobacco. Those who use it frequently in greenhouses, procure tobacco stems, when they are readily to be had, on account of their cheapness, or in suitable climates a small crop of it is raised for this purpose; but tobacco in almost any form may be used, and the amount necessary for a stock of house plants is of inconsiderable value. Some plants, such as heliotropes, salvias, lantanas, and some others with soft, downy foliage, will not bear ordinary fumigations without injury to the leaves, and these plants, therefore, should not be subjected to it. Many plants in full flower, but especially pelargoniums, will throw off their expanded blooms after smoking, and therefore it is best to remove them before fumigating. Care should be used also to have the foliage of all the plants dry, for if they are wet or damp, the smoke will be apt to injure such as are of a soft texture. If the plants are in a conservatory attached to the house, the time chosen for fumigating should be a still evening, when there is little or no wind stirring; and the temperature of the house should be pretty well up, as then the insects are more active, and the smoke will more easily affect them. A few chips or a little charcoal may be placed upon a small furnace or a pan and ignited, and then a small quantity of tobacco placed upon it. The tobacco should have been previously dampened, so as to prevent its burning too rapidly or blazing. See that the fire continues to burn, and add more tobacco, if enough has not been placed on at first, until the room is filled with smoke. It can be left this way all night, and in the morning the plants should be well syringed to free them of the dead insects, and to remove the odor of the tobacco. After a few days it is best to repeat the smoking, so as to destroy any insects that may have escaped the first time. In this way fumigation is to be practiced whenever necessity indicates it; but, as we have before remarked, a free use of the syringe and a moist atmosphere will render the necessity of less frequent occurrence.

When only a plant or two, or a small number of them are to be treated, they can be fumigated under an inverted barrel or large box in a back room or shed. Single plants may be fumigated by making a bell of a newspaper. The smoke can be introduced by means of a tobacco pipe. Fill the bowl two-thirds full of quick-burning tobacco, and after lighting, place a piece of cotton cloth over the bowl, and blow the smoke through the stem with the mouth. Instead of fumigation, a weak solution of tobacco may sometimes be used quite as effectively. This is often the more convenient way for a few plants. Soak or steep some tobacco in water until the strength is extracted. The strength of the water is determined by dipping a leaf into it, or letting it remain in it for a short time. If the leaf is brown or burned, or turns so when taken out of the water, the solution is too strong, and must be reduced by increasing the quantity of water. When the right degree of strength is acquired, dip the whole plant into the water, and afterwards syringe it off with clean water. What we desire to impress most forcibly on the minds of our readers, and especially those who keep only a small number of plants in the living rooms, is the better way of watching them so closely, and syringing and washing them so frequently, that the fly is kept under, and the plants maintained in the highest state of health.

Thrips is an exceedingly active little insect, and seems to leap rather than fly. These insects are extremely small, and have long, slender bodies, with very narrow wings, which are fringed with fine hair. They live on leaves, flowers, in buds, and even in the crevices of the bark of plants, but are so small that they readily escape notice, the largest not being more than one-tenth of an inch in length. The color of the insect varies from a whitish yellow to a dark brown. It attacks the extremities of young shoots and tender leaves, which become brown and shriveled, and will crumble to dust when rubbed between the thumb and finger.

The same means that have been recommended for the destruction of the "green-fly" serve for this little pest also, but it does not succumb so readily; the fumigation must be more frequently and persistently practiced. As we have said in reference to the "green-fly," so with this insect: it may be prevented to a great extent from multiplying by syringing and frequently washing the leaves of the plants.

If a vinery should be seriously attacked with thrips, wait until all the foliage and fruit are taken off the vines; then remove all kinds of plants that have green leaves into other houses, and shut up the vinery close, and fill it with the fumes of sulphur.

The red spider (*Acaraus tellarius*) is a troublesome little insect, and one which, if allowed to run unchecked, would speedily bring devastation and total ruin to the plants of the house or conservatory; but it is no doubt designed for some beneficial purpose. We can more clearly see the compensating good from its attacks than in the case of most other plant-preyers. If it were not for the wholesome fear which it continually inspires, gardeners and other plant-growers would probably very frequently maintain an atmosphere so dry as materially to injure or destroy their plants. If you catch a glimpse of a red spider, you may be sure that the atmosphere of your plant room has been kept too dry. If it is your living room, it has also been too dry for the health of the human occupants. The insect is very minute, and the body is of a blood-red color, and the feet a light red.

A plant upon which this insect has taken up his abode, in a short time shows some leaves turning yellow, indicating premature decay. When they are numerous, they work webs on the under side of the leaves, and sometimes all over it, until the plant becomes a mass of half-dead and decayed leaves.

Water is fatal to the red spider, and as before remarked, with an atmosphere of proper humidity this insect would never get a foothold. When once firmly established upon the plants, the speediest way to destroy them is by the fumes of sulphur. This remedy, however, must be used with much caution, as the free use of it will cause most plants to shed their leaves.

Fortunately, but little of it is required, and in the greenhouses it has been found sufficient to mix a little flour of sulphur with water or

with milk, which is said to be better, and to paint or smear with it a small surface of the heating pipes or the flue; a very little of it in the atmosphere proves sufficient for the destruction of the insect. In the case of a few house plants, we think that sponging of the leaves on both sides, and syringing the plants so that the water is thrown on the under as well as upper sides of the leaves, will be effectual without recourse to sulphur.

The coccus, or scale insect, is a common pest on some kinds of plants. The orange, the myrtle, the camellia, the oleander, and many other hard-wooded plants are apt to be infested by them. There are many species of coccus, varying slightly from each other. One kind of plants is the home of one variety, and another sort devotes its attention exclusively to some other kind. The grape, the pear, the elm and almost every kind of our cultivated and forest trees has its special representative of this class of insects.

The remedy in this case is by washing the plant by hand, and forcing the insect off with the thumb or finger-nail; or take a small, stiff brush and soap-buds, and brush the plant until it is thoroughly clean. The name of the species that infests the myrtle, orange, oleander, etc., is *Coccus Hesperidum*.

The mealy bug (*Coccus Adonidum*) is similar to the previously mentioned insect, except that it is covered with a white, mealy or downy substance. Both of them insert their beaks into the bark of leaves, and draw from the cellular substance the sap that nourishes them. A weak mixture of whale-oil soap and water in the proportion of one pound of soap to five gallons of water will be found destructive to them. With a few plants only we would recommend the use of a soft brush and water, and in this way they can be readily removed.—*Vick's Quarterly.*

The Calla Lily.

BY WM. SUTHERLAND.

CALLA lilies and orange and lemon trees must be especial favorites of the fair sex, judging from the innumerable questions asked us by our lady patrons in regard to their cultivation, time of blooming, etc.

Thinking that some of our fair readers would like to have some information on the subject, I give them a few notes below.

The Calla lily (*Richardia Æthiopica*) was first introduced into Europe from Africa, about the beginning of the present century, from which time it has been cultivated with more or less success all over the civilized world, until it has become one of the most popular flowers we have, not only as a window plant, but also as a bouquet flower, thousands of the flowers being used by our bouquet makers annually; in fact, very few large bouquets of any pretensions are now made up without them, and most of our cut-flower growers have a succession of the blossoms the year round, receiving from ten cents to twenty-five cents for each flower, according to the time of year, demand, etc.

There are some four varieties of the Calla in cultivation—two with green foliage, and two with ornamental leaves, besides our own native variety, all requiring about the same treatment, and resembling each other in the shape of the flower, but differing somewhat in size and shade of color. Strictly speaking, what passes for the flower is only the spathe or sheath that envelops the flowers, the true flowers being clustered together on a short stem in the middle of the sheath, those at the base being pistillate, those on the upper portion being staminate.

Richardia Æthiopica, the old Calla lily, grows from two to three feet in height, the leaves being green and the stalks of a brownish color, the sheath pure white on both sides.

Richardia Æthiopica nana, a dwarfer variety of the above. The spathes or sheaths are smaller, and can be more readily used in bouquets, etc.; the same color as the above, alike on both sides, sometimes of a green shade in the centre. This is easily distinguished from the above by its bright green stem.

Richardia variegata grows about one foot in height, its leaves beautifully veined with white. This variety must be extremely scarce, as I have seen it in no other collection besides

that of the late B. A. Fahnestock, of this city.

Richardia alba maculata grows one foot in height, resembling the preceding variety in style of growth, shape, etc. Its leaves are beautifully spotted with long white spots, as if some insect had eaten the green part out in patches. The spathes are small, and shaded with purple in the middle.

Richardia palustris, our native variety, grows about one foot in height. Its leaves are heart-shaped; the spathes, which are white on the upper side, and green on the back, spread away from its clustering flowers. This variety forms no bulb, but can readily be grown from its long and jointed fleshy roots. It also bears a conspicuous cluster of red berries in the fall.

While the Calla lily is not very fastidious as to soil, etc., I have found it to do best in a rich, sandy loam—say about equal parts of loam-sand and well-rotted cow manure. When growing, it should have abundance of water. For this purpose it may be grown in pots standing in pans of water, or its roots entirely or partially submerged. In this way it can be grown in fountains and other bodies of water. When done blooming, it should be dried up until all the leaves fall off. For this purpose the pots containing the plants may be laid down on their sides in any dry place, where, after resting a month or six weeks, the bulbs should be shaken out of the old earth and repotted in fresh soil. Removing all small bulbs and side shoots, reserve only the strong bulbs for flowering. Water sparingly until they begin to grow, when they must have a more copious supply. They generally begin to bloom about four months after being potted. —*Gardener's Monthly.*

Liquid Manure for Pot Plants.

THE beneficial results obtained from manure water, when judiciously applied to fruiting and flowering plants, have long been recognized by cultivators, and its use is now becoming more general. It is well known that the roots of plants are more healthy when growing in pure soil, free from rank manure, and that these roots will draw more healthy nourishment to the plants from manure given in a liquid state, than when they are encased in rank material which they cannot consume. We know that our most successful grape growers use very little solid manure in the soil—only a few bones or bone meal, or similar material, which cannot give off more stimulant than the plants can consume. These will remain much longer in the soil than manure, which dissolves rapidly, and continue their action as a fertilizer to the end.

The successful florist has more faith in giving stimulants when the plant really needs them, than in keeping the roots buried in soil made rich and almost offensive by strong manure. When roots are few, and the plants almost at rest, the purer the soil and the less stimulant the plants receive, the better will they thrive when their roots come to draw up larger supplies of nourishment. Moisture is needed to soften the soil, and to allow the roots to extract nourishment from it; but when all the virtue is out of the earth, and the plants begin to show signs of distress, all the watering in the world will not give vigor to the exhausted functions. But let a portion of guano or any well prepared manure be mixed with the water sufficient to color it, and let this be repeated at every watering instead of giving a much stronger dose at longer intervals, and the result will be most satisfactory. We have tried a number of experiments this season with liquid manure, and all lead us to have faith in the application of it, at every watering, in a weakly state.

A number of old Fuchsias were stunted and pot-bound, but pressure of more important matters prevented our potting them into fresh earth; but to each watering a coloring of guano was allowed, and the plants with their pot-bound roots have not only made vigorous growth, but flowered freely from June until November. Some Pelargoniums, which were cut down last season and allowed to break in the usual way, were shaken out of the pots and placed in smaller ones; but when they should have been shifted, they were allowed to remain in the small pots, which were crammed

with roots. Guano water was given at all times when they required moisture, and the plants grew and made fine foliage, and flowered better than the others which were favored with larger pots and fresh soil. We could give many other examples to prove that giving liquid manure frequently, and not until roots are in abundance to consume it, is the proper way to deal with this important assistant to cultivation.—*Florist.*

Plants for Window Gardens.

IN a recent discussion of this subject, by the Maryland Horticultural Society, Mr. John E. Feast, after referring to the beauties of window gardening, said, the three principal things required to grow plants successfully are light, air and moisture. Light is one of the most important agents in the growth of plants; it strengthens the color and matures the growth of both wood and bloom. In cultivating, place the plants as near the glass as possible. Windows facing the south are always the best. Judicious watering is, perhaps, the most important feature in their management. The last and only general rules that can be adopted are: in winter keep the plants (not then growing) rather dry. In spring increase the quantity of moisture with their activity and the sun's power, keeping them in a medium state. In summer water plentifully, but decrease the supply gradually as cooler weather approaches. Never water a plant without it is dry, and then water thoroughly, so that the soil may get wet to the bottom of the pot. All refuse water should be emptied out of the saucers. Give plenty of air every fine day, but avoid draughts. To grow plants with credit in a window they should be screened from the dry air of the room. This may be done either by a curtain or an inside window. If plants are not screened they will be injured by the gas and dust. Cleanliness is also highly necessary; it may be done by syringing and sponging the leaves, and keeping the plants free from insects. The temperature of the room should be uniform, not lower than forty-five degrees at night, nor higher than seventy-five during the day. In severe weather, when the temperature of the room cannot be regulated, the plants will often have to be removed from the window.

List of Plants.

Pot Geraniums of dwarf habit and fine form. — The following are good: Master Christine, Mademoiselle Nilsson, Christabel, Belle Helene, Leonidas, Black Dwarf, Louis Veuillot, Madame Van Houtte and Bridesmaid.

Best six window plants.—To an inquirer asking for such as are of handsome habit of growth and of long continued flowering during winter, the following are recommended as easy to procure and easy to grow: Chinese Primroses, Zonale Geraniums, Tree Carnations, Heliotrope, if there is light enough, Cyclamens, and the common Abutilon.

Best window foliage plants.—Taking it for granted something very easy to grow and procure is desired: Variegated Veronica Speciosa, or some of the variegated varieties of the shrubby Australian species; variegated Agapanthus umbellatus; Abutilon Thompsoni; Epiphyllum truncatum, grafted; Tradescantia discolor, and Aralia papyrifera.—*Gardener's Monthly.*

A Fine Wistaria.—A contributor of *The Gardener* calls attention to two very fine plants of the *Wistaria Consequana* (*sinensis*) on the grounds of the Rt. Hon. Lord Trevor, M. P., which for three weeks were not equalled for the size and profusion of bloom. They covered a space of wall 56 by 13 feet, and bore upwards of 2,200 racemes of flowers over 12 inches in length. From some of the spurs depended 50 racemes.

Kerosene Oil for Insects.—A correspondent of the *Gardener's Monthly* says the simplest plan to use this substance to destroy insects on plants is to make some moderately strong soap suds and mix a little oil with it. It readily combines with the suds and can be then applied uniformly with a syringe. It is the best thing for mealy bugs and may be used in dilution suited to the nature of the plant requiring treatment.

Editor's Portfolio.

Chinese Fruits.

Long-yen and Li-tchi.—Many Chinese fruits are well adapted to California, especially the sheltered southern and middle portion of the State.

Among these are "Long-gan" or "Long-yen" (*Dimocarpus Longan* and *D. Li-tchi*). Both species are trees, but there are many varieties cultivated in southern China and the East Indian Islands. They differ in the quality of the flesh and time of ripening; also in the shape of the fruit, some being globular, like the Li-tchi, so common on the Chinese fruit stands of San Francisco; others are heart-shaped or oblong, but nearly of the same size. Long-yen is also medicinal.

The twigs are thick and gross, like the Fig, leaves oddly pinnatified, like the Walnut. The fruit is produced in long, loose racemes or clusters, somewhat like an open bunch of very large grapes, usually red when ripe. In one species it continues green. Both Li-tchi and Long-yen are of a uniform light brown color, as they appear sun-dried or oven-dried in our market. In the recent or fresh state it has a leathery coat, rather thin, and inside is a semi-transparent substance, with a dark brown seed in the centre. The flavor of the pulp is slightly sweet, subacid, and particularly pleasant to the taste in a warm climate. It should be remarked that when dried, the pulp is shriveled and reduced to half its usual size. It is eaten with tea, and has a rich taste when well preserved. By the buckle-like or truffle markings of the cinnamon brown surface, and thin, brittle, bladder-like shell, any one will easily recognize it.

The trees bear fruit much sooner when raised from cuttings. If from seed, eight or nine years are required, whereas from cuttings only three or four years.

The best authorities now place these under the earlier genus *Nephelium*—*N. cappaceum*, one of the most ornamental and wholesome.

China Peaches.—Some varieties grow to the height of forty to fifty feet, with fruit of great size. Marco Polo saw a peach in the district of Cang-chew that weighed two pounds. In general, the larger sorts are considered to be of inferior flavor, although some peaches in the Emperor's district are said to be as exquisite and meltingly delicious as the best European. The gardeners have the secret art of preserving the fruit gathered in October until January, as nice in flesh and flavor, and as smooth as in the fresh state. It should be noted that in China peaches are budded upon stocks raised from seed or pits of the choicest varieties. The flat variety flowers in autumn, ripens very early, and with California excess of winter sun would do well.—*Dr. A. Kellogg.*

Cultivating Truffles in France.

Large tracts of land in the south of France, not hitherto cultivated, are being planted with the kind of oak trees beneath which truffles are generally found, and it is expected that each acre of this land, lately sold as low as $25, will yield a crop of truffles worth $100 per year. The experiment has already been tried in the department of the Vaucluse, and in the course of the last twenty years, 150,000 acres, which were absolutely unproductive, have been planted, and are yielding a rich return. The cost of plantation, which is borne by the commune, does not exceed twenty francs per acre on hilly ground, and though rather greater in the lowlands, the crops are proportionately heavier. Acorns only are planted on the hilly ground, but saplings of five or six years' growth, placed in rows about forty feet apart, are found to answer best in the lowlands. The ground between each row of trees is planted with vines, which, after five or six years, repay the cost of the plantation and its culture.

Adiantum Farleyense.

Probably one of the finest examples in the United Kingdom of the beautiful exotic fern, *Adiantum Farleyense*, "The Queen of the Maiden-hair Ferns," was shown at the exhibition of the Stamford Horticultural Society, Sept. 4th. It was staged by Mr. Allsop, gardener to C. T. S. Birch Reynardson, Esq., Holywell Hall, Lincolnshire. Well grown,

very healthy and beautifully colored, this specimen must have measured nearly or quite three feet in diameter; and the boldly arched, elegant fronds gave it a fine symmetrical appearance, which did not fail to excite the admiration of all who saw it. A single frond of this superb fern is a sight to be thankful for; but it is when a large and well grown example of it meets the eye that one seems to fully appreciate and delight in its exquisite beauty and almost unrivaled elegance.—*Gardener's Chronicle.*

Cranberries in Japan.

A young Japanese, while in the United States, expressed much surprise at seeing cranberries eaten at the table, and said that in the mountains of Japan they grew very large and beautiful, but are never cooked. Some old man occasionally goes up to the mountain and picks a long basketful of them, which he brings on his shoulders down to the town. Here the boys gather about him, and for a small coin purchase the right to crowd their pockets with them. And what use do you think they make of this otherwise useless fruit? The boys blow the glowing berries through rattan tubes, as our boys blow beans through tin ones. That's what cranberries are used for in Japan, where they grow to great perfection.

India Rubber Tree in California.

J. P. Rowe, writing to the *California Agriculturist*, gives the following information: In answer to one of your correspondents, who inquired some time ago about India rubber trees, I wish to inform him that they grow as easily here in California as the Blue Gum and Pepper trees. Here are the statistics of one grown at Capt. Wilcox's town residence, San Diego: Age, two years; height, seven feet eight inches; circumference, five inches. It has been in the garden twenty months, and during that time it has grown seven feet.

California Roses.

Santa Barbara now puts in a plea for the largest rose. Less than a year ago, Dr. L. N. Dimmick placed in his grounds a rose plant, the King of Noisettes, Maréchal Niel. This has extended over a trellis arching one of his garden walks. Within the last six days, a shoot some three feet in length has grown from the foot of this trellis. On this stalk, surrounded by half a dozen vigorous buds, hangs to-day the champion rose of the world in size and perfection. The Maréchal Niel is a cupped variety of rose, having a lemon tint, and with a delicate and delightful perfume. This rose is $16\frac{3}{4}$ inches in circumference; its shorter diameter five inches. The measurement in various directions from tip to top of petals is over six inches! The depth of the rose is fully three inches. This, we claim, is the largest rose on record. Another marvelous thing we noted before leaving the grounds of Dr. Dimmick—113 buds on a rose truss of the La Marque variety. A common felt hat covered the space in which were counted the above number of buds.—*Santa Barbara Press.*

American and European Trees.

A few years ago there appeared in the "Proceedings of the Philadelphia Academy of Natural Science" a paper on the identity of relative characters in numerous allied species of American and European trees, in which it was shown that American trees are comparatively dwarfed in their habit. They have smaller seeds, smaller buds, closer nodes, less regular and less twiggy heads, thinner leaves, deeper seratures and higher autumnal coloring than their near European allies. A European observer has lately added to these notes the fact that American species cast their leaves earlier in the fall than their kindred species in Europe.

To Preserve a Bouquet.

When you receive a bouquet, sprinkle it with fresh water; then put it into a vessel containing some soap-suds, which nourish the roots and keep the flowers as good as new. Take the bouquet out of the suds every morning, and lay it sideways in fresh water, the stock entering first into the water. Keep it there a minute or two, then take it out and sprinkle the flowers lightly by the hand with pure water. Replace the bouquet in soap-suds, and the flowers will bloom as fresh as when gathered. The soap-suds need to be

changed every third day. By observing these rules, a bouquet may be kept bright and beautiful for at least one month, and will last longer in a very passable state; but the attention to the fair but frail creatures, as directed above, must be strictly observed, or "the last rose of summer" will not be "left blooming alone," but will perish.—*American Artisan.*

New Rose.

Duchess of Edinburgh, Crimson Tea.—Most Tea roses are light—a dark one will be welcome. Messrs. Veitch & Son say: "The color is a deep glowing crimson, very free flowering, and from its present appearance we have every reason to believe it will make as good a bedding variety as the Crimson China." The flowers are large and full, fine form and substance.

It was exhibited at the Royal Horticultural Society's Show on May 13th, when it received a first-class certificate from the Floral Committee, and was greatly admired.

Superior Peaches.

We venture the assertion that the recent Fruit Growers' fair in New Orleans had nothing superior to some peaches which were last Saturday presented us by Mr. David Riggs. Taking two of the largest; one weighed nearly, and the other over, nine ounces, and they were ten inches in circumference and almost four inches in diameter. Such mammoth peaches were never before grown in this country. They were of the cling variety, but as sweet and juicy as any peach we ever ate. This should encourage others in peach culture, for he has fully demonstrated that as fine peaches can be grown here as in any country. Four years ago he located on the prairie, and now he has several hundred peach trees in full bearing, some of which are of choice grafted varieties, and he intends hereafter to cultivate only the best. We hope others will follow his example.—*Louisiana Sugar Bowl.*

Notes on Geraniums.

In a corner of my little botanical garden, I planted a circle with Zonale Geraniums, one of a kind of the most promising varieties, merely to test their respective worth. They are now blooming and I find I have too many kinds. Among the scarlets, none surpass the Gen. Grant for profuseness of bloom; it is a poor flower and an open truss, but the color is brilliant. Lucius is grand, but of a lighter shade than the above. Jean Sisley is very fine, as every one knows who cares anything for flowers; its pure white eye making it very conspicuous. Among pinks, Master Christine must take precedence for profuseness of bloom, and decided color. The new White Clipper is a wonderful bloomer, endures the sun well, and is the first really good white that I have yet tested. Among doubles, I like the Gloire de Nancy as well as any other, although none of them yield so many, nor as fine trusses as the single varieties. The new Jewel is a dwarf compact grower with small trusses of extremely double flowers, deep crimson in color; it promises well for the border. In the variegated leaved kinds, I am not aware of anything to surpass that sterling bronze geranium, Gloire de Corbenay, a variety that stands the sun with perfect impunity. For ribbon gardening or for massing, it can have no superior in this locality at least. I had almost forgotten the very beautiful Asa Gray with its exceedingly conspicuous salmon-orange double flowers. It has been one continuous sheet of bloom the entire season, and is abundantly distinct from anything else.—*N. Y. Tribune.*

The Oak-leaved Pelargonium.

The *American Garden* remarks: "From thirty to forty years ago, it was a very common plant, being found in every greenhouse, and, during the flower season, offered for sale at every plant stand in the markets. When it became the fashion to despise old favorites and to cultivate only novelties, this was discarded and disappeared from the catalogues. Through an inadvertence we lost our own, and after seeking another for seven or eight years among our leading florists, we at last found one at an old-fashioned local nursery in New Jersey. We have now grown it for the past eight or nine years with both pleasure and amusement—amusement derived from

witnessing the admiration bestowed upon it by visitors, not so much for its great beauty as for its great novelty. And yet it was cultivated on New York Island at least seventy years ago. As a bedding-out, ornamental foliaged plant, it is equal to any of the finest novelties—few (if any) of which equal its rich bright foilage and luxuriant growth under our scorching sun."

Garden Soil.

I am induced to give my experience and practice for the benefit of those who, like me, have to cultivate a heavy, clammy soil for a garden. Such soil may be put in the best condition when the seeds are planted, but before they germinate sufficient to reach the light and air, so essential to their existence, as is frequently the case, there comes a heavy dash of rain, followed with a hot sun, forming a hard crust impervious to the little delicate plants, too feeble to break through their imprisoning wall. I have had to pick up the rows with an iron tooth rake, or reduce the surface to a fine, loose state again, and plant over. The plan I now adopt entirely obviates such a discouraging difficulty. After putting the ground in the best of condition by deep culture, breaking down lumps and working in a good supply of well rotted manure (none other should be used in a family garden), I rake the surface smooth, over which I spread a compost, prepared for that purpose, about half an inch thick; lightly draw the rake over the covered surface, which mixes the soil and compost. When I prepare large beds I spade a strip three or four feet wide the entire length or breadth, prepare it for the top-dressing, and spread it on, and so on, until finished, by which unsightly footmarks are avoided, if for appearance sake only.—*Cor. N. Y. Tribune.*

The Florists of Ghent.

A correspondent of the *Gardener'r Chronicle*, after visiting the extensive green-houses and nursery establishments of Ghent, Belgium, writes of the owners and of the bouquet business as follows:

"The smaller growers are simple, friendly, and frank in their manners, making no pretensions to be greater than they are, and instead of giving themselves professional or social airs, doing their work in rough working costume, and protecting their feet from the damps of the soil by those excellent non-conductors, wooden shoes; which their wives also do not disdain to wear upon occasion. They manifest no wish to keep secret processes which many people might endeavor to conceal. Such details of their art as can be conveyed by telling and showing, they seem perfectly willing to communicate. The real secret of success lies, in fact, not in knowing the way in which a thing is done, but in the practical skill, the perfect manipulation, and the completed experience, acquired by doing it long and frequently. The visitor desirous of seeing how Camellias or Azaleas are propagated; how long they, or other cuttings or grafts are kept *etouffees*, stifled close under double, sometimes triple glass; the mixture of soils, and their renewal, in these hard-cropped, circumscribed nurseries; the practice of cross-fertilization by which, for instance, herbaceous Calceolarias maintain their parti-colored flowers—such knowledge as this, and more, the visitor to Ghent can acquire without difficulty, through the amiable desire of its horticulturists to oblige inquiring strangers. Of course they must see that the inquirer takes a real interest in the matter, and knows something about it, and is not a mere idle lounger, or questioner for questioning's sake. Pretty things and nice specimens are often to be found up amongst them. Their prices, too, are moderate, as most of the trade are well aware; and, like other weak creatures here below, they have no objection to ready money. Probably, they may often act as propagators and providers to the horticultural grandees of the place; but about those business matters a casual visitor has no right to be too inquisitive. They do not really concern him. Enough for him if he be received, as we atways have been, with an affable and ready welcome.

There is a rumor that certain brides refuse to be married without a Vandriessche-Leys bouquet. If they would hold out in their

resolution I cannot tell. Those who want one must apply, not to the back gate, by which we gained admittance, but to No. 87 Rue d'Akkergem. We were shown a handsome specimen, just finished off: nothing but a centre of orange flower buds (end of October), with an outer border of their natural foliage, the whole trimmed, not too staringly, with white satin and real lace.

The bouquet, before completion, passes through several hands, and is composed of several elements. First, the master takes a basket and gathers flowers which he judges suitable for its composition. These he hands to an assistant, who mounts them, separately, by tying them to a top of a dried rush, or other slender and light support. As each flower is mounted he sticks the lower end of each artificial flower-stilt into a box of sand, which thus serves as a pincushion. The arrangement of the bouquet is not his business—though in case of need he might acquit himself fairly—but Madame's, whose taste is supposed to be superior. She has circular cushions of moss ready made and kept in stock; a bunch of box from an edging is sometimes used for small and low-priced bouquets. On one of these moss cushions she arranges the stilted flowers like pins, until the desired arrangement is completed. The whole is then slipped into a cardboard case or holder fringed with real or imitation paper lace, and the thing is done. No engraving, without color, would give an idea of the beauty of the effect produced. That beauty, unfortunately, is short-lived. All that can be done to prolong it is to sprinkle the bouquet's surface with water, and to keep it closely covered in a box during the night. Sticking a mounted bouquet into a jar of water, to preserve it, has been compared to a Chelsea pensioner's putting his two wooden legs into a hot foot-bath to cure a cold."

American Grapes in Europe.

Our state entomologist, Prof. Riley, having returned from a trip to Europe, reports that there is an extensive demand on the part of French vine growers for cuttings of several varieties of our native grapes, including the Taylor, Clinton, Cynthiana, Herbemont and Norton's Virginia. The phylloxera or grape louse has destroyed millions of vines in the most celebrated vineyards of France, and all efforts of the government or of individuals, have proved fruitless to stop the mischief. Prof. Planchon was sent to this country to ascertain how our vines withstand the attacks of this insect. He discovered that a majority of the best sorts of our vines are of such vigorous growth that the louse fails to injure them. Some of these varieties had been sent to France years ago and showed no less vigor there. Hence, the demand for American cuttings as stocks upon which to graft the weaker European varieties. Prof. Riley informs the New York *Sun* that he has seen specimens of American vines in France growing vigorously and apparently perfectly healthy, among the blackened remains of vast numbers of phylloxera-stricken vines. As the phylloxera attacks the roots of the vine principally, the main object of the French vineyardists is to procure American varieties to be employed as stocks; but very likely this course will have to be abandoned when they learn more of our choice vines. Yet the prejudice which prevails in Europe against American vines will have to be broken down before even the best sorts are planted there for their fruit. The *Sun* thinks, however, that our grape growers can expect a large foreign demand for American cuttings, and that eventually some of our varieties will be found to yield an excellent wine when grown without grafting in the south of France. The wine may be a somewhat different flavor from the old standard French grapes, but it need be none the less pure; and we may expect, before another decade has passed, to find French wines made from American grapes, well represented in our own markets.—*Kansas City Times.*

Hardy Roses and Spireas.

A correspondent of the *Prairie Farmer* in Iowa gives notes of his experience in roses, etc.:

Remontant roses are nearly all hardy, when protected with a few inches of leaves or litter.

Among the best of these are the Giant of Battles, Marshal Niel, Aubernon and La Reine. Bourbons are also hardy when laid down and covered with litter, placing some boards over it to keep it down. I have for some years kept Dupelit Thomas, Souvenir de Melmaison, Hermosa, etc., in this way. Noisette, and even Teas, will do equally well if planted on high, dry, well manured land, and covered well with leaves and garden litter.

As a general rule, all these roses are cultivated for late, rather than early blooming. The English of Remontant is, to "rise up," and to succeed well with roses of this sort, they must be kept closely pruned, so they will continually rise up. In autumn trim them close, within four inches of the ground, and cover over with leaves and litter. In spring, clean off the ground, manure well, and cut down the flower shoots when done blooming. This has been our practice for more than twenty years. In ordinary seasons we have an abundance of the most fragrant autumn roses.

The little double, white, rose-shaped spirea is not hardy here, though Reevesii and Billardii, the latter a lilac colored and shaped bloom, both are. Reevesii is best grown in open ground, so as to get as long shoots as possible. In the fall, take up and plant in large pots. Put these in a cold pit covered with glass. Early in March a profuse bloom appears, very desirable for bouquets and wreaths, well deserving the name of "bridal wreath." If left out of doors, many of the long shoots are winter killed, and often a portion of all; the bloom is very scattering, and soon blows off by the spring winds. Grown in this way, this variety of spirea is the most desirable of all.

The Yam.

Speaking of the Brazilian yam, now extensively cultivated in the Gulf States, a correspondent of a Mobile paper writes: These potatoes are the best I have ever seen. They are equally as sweet as the old yam, and on the same land, with same cultivation, will make fully one-third more than any variety I ever saw. They are hardy and keep well during the winter. I have also the red-skin yam, yellow inside, which is certainly the best early kind to be had. They are fully six weeks earlier than any kind obtainable.

Roses.

A London writer says: The best roses, according to scientific rules and the growers' estimation, are not always those which an unlearned visitor, a mere lover of roses, looks at with most delight; there are mysteries of form and fullness which he knows nothing of, but some of the grandest flowers strike every one with wonder. Such a rose is the Marie Van Houtte, which is of a reversed bell shape (like a bell as the ringer jerks it upward for a good peal of joy), of the tea order, its leaves of a pale yellow tint, edged with pink; a supremely lovely flower, with the faintest suggestion of a tulip in it, and a breath of quite peculiar sweetness. The French roses bear away the palm of beauty, and the learned in them tell us they are more beautiful here than in their own country. The Glorie de Dijon, an "old" rose—it has glorified many a land beside its own—is, to our taste, unsurpassed; but the lustrous dark pink of Marie Cointet runs its tender yellow close, and the Eugene Appert is very near the throne.

A Few Puns.

What strawberry is best adapted to gardeners' boys?—*Hoe-Boy.* What sort would suit the Sandwich Islanders? — *Black Prince.* What best suits young collegians? — *Boy Dens.* What would be sought by young pilferers?—*Hook-her.* What one would fill a large measure and count high?—*Knox's seven hundred.*

Strawberries first made their appearance in the London market this year on the 23d of March. Baskets containing from six to nine strawberries sold at about five shillings.

There is an elm tree in Paris that was planted in 1605, in the reign of Henry IV. This year its leaves were as early as those of its younger neighbors.

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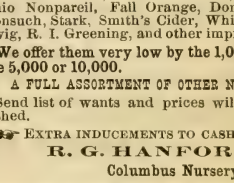
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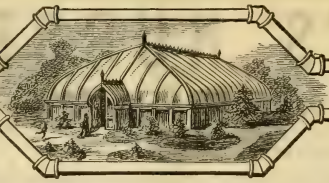
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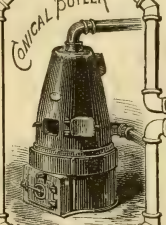


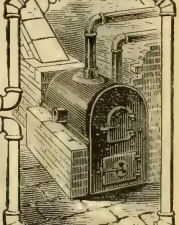
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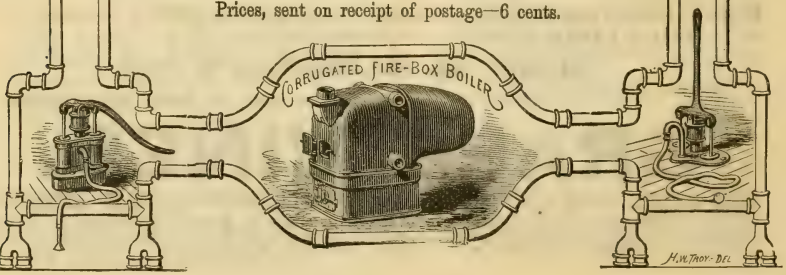
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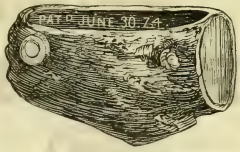
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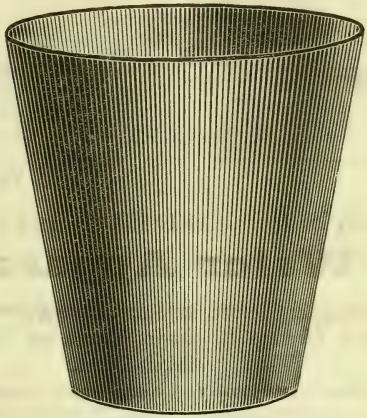


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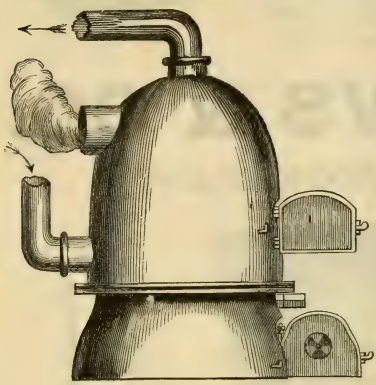


Fig. 1

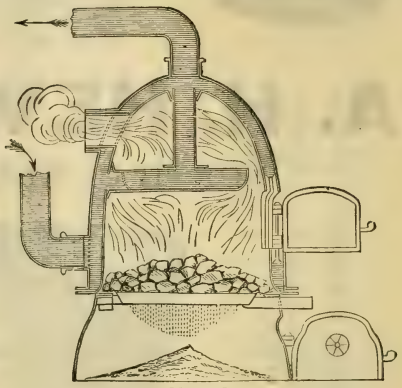


Fig. 2.

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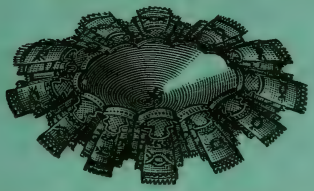
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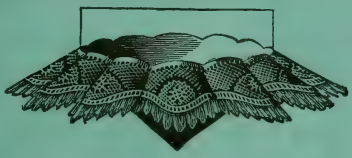
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Assisted by the following Special Contributors to Editorial Departments:

JOSIAH HOOPES. ANDREW S. FULLER, JAMES TAPLIN.

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Special Contributions.

The American Pomological Society.

Address at Chicago, Sept. 8th, by President Marshall P. Wilder.

WE assemble here at the invitation of the Illinois State Horticultural Society, to whom, and to the Inter-state Industrial Exposition, we tender our grateful obligations for their courtesy and the arrangements made for our accommodations.

Twenty-seven years have taken their flight since the organization of our association. Many of those who assisted in its formation rest from their labors; but some of them are here to rejoice with us to-day in its progress, prosperity and usefulness. Our society still lives in a fresh and vigorous manhood, and we are permitted once more to assemble for the promotion of the objects so dear to its founders and so essential to the welfare, not only of our common country, but of all mankind. Like all other associations and enterprises, it has had to pass through its years of pupilage before it could arrive at its present state of knowledge; but it has now attained to manhood, and is able to act with an energy and enterprise which give promise of long life and still greater usefulness. It has celebrated the first quarter-centennial of its history, and now awaits a fuller and more glorious development of the benevolent purposes for which it was established.

Gentlemen, your presence in such goodly numbers affords me the highest gratification and encouragement. I am most happy to meet so many of our Western cultivators, whose personal acquaintance I shall be glad to make; and I am especially pleased to recognize many whose names are honored for the contributions they have made to the cause of science, and will be cherished as long as merit shall be appreciated and worthy deeds command the gratitude of mankind. This is as it should be; and, coming as we do from distant and different sections of our extended country, embracing almost every variety of soil and clime, we are enabled, in a short time, to accomplish much in comparing the effect of temperature and other climatic influ-

ences on the fruits of our different localities, and by our record of experience to decide on the kinds suited to our various districts; and thus build up the science of American pomology.

Our society has held its meetings in the various quarters of our country—East, West, North and South; and now it assembles for the first time in this great commercial centre of the West. It has been extending its jurisdiction and influence with every session, until it embraces the whole Union, and the Provinces of Great Britain that lie on our borders. It has officers and local committees in all these sections of our land, and has assumed the vast work of designating fruits which are found to be congenial to the various soils and temperatures of fifty states and districts that are named on its catalogue. When we consider that these results have been secured without governmental aid or public patronage, and simply by voluntary association, and how long it has taken old and richly endowed institutions to make their influence felt on the world, it is a matter of surprise that our association should have impressed its importance so deeply, not only on the minds of our people, but on the nations of the Old World. How distinctly do we now see the wisdom and foresight which prompted the founders of this society in the formation of a national institution, whose example should be followed by the nations of Europe, for the promotion of the same science.

The fruit culture of America has surprised the world. Like the genius and invention which characterize this nation in other arts, it has taken its stand as the forerunner and herald of a new era in the history of pomology. Yet, gentlemen, we have scarcely entered on the vast field which we now occupy. We have but just seen the dawning light of our science, which is yet to illumine this great Western world. True, we have planted our ensign in almost every section of the country, we have stationed our pioneers from the Atlantic to the Pacific, from the Lakes to the Gulf, and have gathered into our fold the most experienced and enterprising cultivators of our country, and we have already produced many native fruits, which are not surpassed by those of foreign climes. But when we reflect that our country is constantly expanding and increasing in its territory and population, to which no human foresight can fix a limit, we see the grandeur and importance of our work.

The progress of fruit culture is especially evinced by the improved methods of cultivation, the high standard for quality, the great quantities of fruits now sent to market, the improved methods of packing, and the increased facilities for transportation, not only to all parts of our land, but for foreign exportation, so that at this writing two thousand and four hundred baskets of peaches are on the way to England, by steamship, for a market.

Nor is this progress confined to the fruits of our Northern clime. This interest and enterprise has exerted a powerful stimulus in the Southern, Southwestern, and Pacific States, not only in the culture of the grape and other Northern fruits, but of the orange, the olive, almond and fig, for commercial purposes, which, as a national society, we are bound to include in our sphere of action. How great would have been our surprise if we had been told, at the formation of this society, that, at its quarter-centennial celebration, magnificent oranges and lemons would grace the exhibition from Mississippi and California; and still more strange should we have thought the prophecy that the latter state would have groves and plantations of the orange to the extent of hundreds of acres at the present time; or what would have been thought of the interest now manifested in Florida and the Southern States, giving promise of a great future for the culture of semi-tropical fruits in America. Within a few years a new zeal has sprung up for the culture of these precious fruits, which give hopes of a development of resources that may rival those of the most favored foreign climes. Already thousands of acres have been assigned for the culture of these fruits, which cannot fail ultimately to become valuable, subject

only to the losses which always occur in the beginning of a new enterprise, from want of experience on the part of too sanguine operators.

But what shall we say of the grape, now multiplied into hundreds of varieties, some of which are suited to every portion of our land. Many present can remember the time when the Isabella, Catawba and Scuppernong were the principal varieties in cultivation, and when not a seed had been sown for the production of a new variety. Now, millions of seeds are sown, and from these thousands of new and varied offspring arise, some of which are constantly taking their places on our catalogue. Instead of two or three varieties, as in former years, we have the collections of Ricketts, Bush, Campbell, Moore and others, containing a hundred varieties or more, and from which, in all probability, some valuable kinds are in time to be added to our list for cultivation in some section of our country. Nor should I omit the wonderful fact that within the borders of these United States may be produced, in amazing abundance, every variety of grape known to foreign climes, and from which, ere long, may also arise native varieties of equal quality and adaptation to the soils of our Western coast. In the words of Prof. Gray: "A good time is coming for the grape. New varieties can be produced so easily that they will have achieved their position when the American Pomological Society holds its centennial celebration."

Nor is there any reason to doubt that, as with the pear and other fruits, new varieties of the orange, lemon, almond, olive and fig may be produced of equal or better quality than any we now possess, and adapted to a still wider space of territory. Of the fig and the raisin as articles of commerce, Dr. Strentzel, our Chairman of the Fruit Committee for California, writes that a wide field is opening on the Pacific coast, and we believe that both these and the orange will be greatly increased in the extent of their cultivation and general use. The total yield of raisins in California last year was estimated at four hundred tons, valued at nearly eighty thousand dollars.

Have you ever, my friends, thought of the significance of the phrase, "American pomology," a phrase till lately unknown among us? Think how recently the fields which now furnish the majority of fruits were the abodes of the red man in the forest wild, and look for a moment on the contrast. What a grand display of our annual product of fruits! What mountainous heaps of apples, pears and grapes! What millions of baskets of peaches and strawberries! And yet how limited the product when compared with the harvest of that measureless breadth of acres which are to be covered in the future with these fruits. How emphatically do these point to that important part which our association is to play in the development of the fruit resources of this continent, and in helping on the grand end of human happiness. Gratifying and wonderful as our progress has been, it is but as a glimpse of the morning compared with the noon-day glory, when these rich gifts of Providence to our favored land shall have arrived at their full development. The grain and other manifestations of material wealth, with which our country abounds, are the reserved stock, upon which the nations of the Old World rely to meet the insufficiency of their own crops; and the time will arrive when the fruits of our land, now becoming so popular in foreign markets, will be required by the imperative demand for these products, and without which the comforts and happiness of life would be greatly reduced. It is therefore our duty, as benefactors of mankind, to develop these immense resources of our country, and to increase our fruits to their fullest extent; so that, from our Eastern to our Western shores, they may be distributed in abundance, not only to the wealthy, but to all classes, as a part of their daily food. The trees we plant live to bless the world and enrich the inheritance of our children long after we are laid beneath them, and, with the return of each successive season, to shed their fragrance on the air and crown with golden fruits the harvest of the year. Nor are these blessings only for a day or an hour.

"Another crop the following year supplies,—
They fall successive, and successive rise."

Mission and Importance of the Society.

Gentlemen: I have often addressed you on the importance and mission of this society, and I was inclined to refrain from further remarks on this subject; but the more I reflect on it, the more am I impressed with the imperative obligations which rest on us to do what we can in our day and generation for advancing its great interest. In the providence of God, our society has been made the leader of pomological progress on this continent.

"There is a tide in the affairs of men,
Which, taken at the flood, leads on to fortune,"

and there is a tide in the affairs of institutions as well as of individuals. We seem to live in a peculiarly favorable period for the promotion of our art. When we consider that our society was the first national institution of the kind, and that its example has been followed in so many other nations, we may take it for granted that the methods which we have used are the best for the acquisition and the diffusion of knowledge on this subject. These considerations impress us with the importance of our work, and the duty to dovelop, on the virgin soil of this Western continent, the wonderful resources which have for long ages lain hidden in the arcana of pomology. Nor is it singular or strange that they should have remained thus unknown, for Providence puts it into the hearts of men to work together for the advancement of His grand designs by the development of the resources He has kept in store, to ameliorate the condition and increase the happiness of His children, no faster than the age is prepared to receive a more refined and higher civilization. Thus was it in the discovery of this country, with its vast agricultural and mineral resources; thus in the declaration of its independence as an asylum for the oppressed of the world; and thus in giving us the illustrious men who have led the way in the march of civilization, which characterizes the age in which we live,—

"That every blessing may be ours
Which Providence has given,
To every land and clime beneath
The canopy of heaven."

Thus He gave us Columbus and Vespucius, Franklin and Morse, Washington and Lincoln; and thus He gave us, not less efficient in their spheres, Coxe and Prince, Buel and Thomas, Dearborn and Manning, Downing and Brinkle, and Kennicott and others, who now live for the promotion of American pomology, and with them the assurance that He will raise up those who shall carry on the work when we are gone.

Standing, then, as we do to-day, in this great commercial city, which but a few years ago had only a beginning,—looking down the Atlantic slope and stretching our vision over to the Pacific coast, and from the Lakes to the Gulf, and embracing within our recollection the entire history of pomology which has made our nation so renowned, who does not feel a desire to aid in its promotion throughout the whole domain. For myself, I yearn that my life may be prolonged to witness its further advancement; and, should I be called to depart, I pray the good Lord that He will make me a ministering angel to earth, so that I may still witness its growth. Permit me to say that I esteem more the privilege of having been a co-laborer in this most beneficent work, than in any other with which I have been connected; and I appreciate more highly the favor of the official position with which you have so long honored me, than that of any other which has been conferred on me during a somewhat protracted life of public and private service. Pardon me, gentlemen, for these personal allusions; but when I reflect that this is but the youth of this society, and contemplate what its maturity will be; when I reflect upon the blessings which have resulted from the labors of its members; when I contemplate the happiness that it is to confer on future generations, when our vast territory shall be peopled by an enterprising population, elevated in the arts and refinements of life,—my heart rises in gratitude to the Giver of all good, that He has permitted me to be a humble co-worker

in what has already been accomplished by the diffusion of our precious fruits,—far more precious than all the gems that have come down through a long line of monarchs.

The Published Volumes of Proceedings.

And here let me acknowledge the great aid which has been rendered to our association by the co-operation of the press, and the agricultural, horticultural and other kindred institutions, so numerous in our land, most of which have taken an interest in our work and the growth of our association. Thus the concentrated efforts of a thousand societies and thousands of experimenters are uniting their efforts with ours, and through us are urging on the good work, and making the published proceedings of this society, as they ever should be, the acknowledged pomological authority of the land. Let me state, for the information of our recent members, that these have been regularly published from the organization of the society, and comprise, in a condensed form, a mass of information on the pomology of this country, and the adaptation or non-adaptation of fruits to its several localities, such as is nowhere else to be found.

Few are aware of the time and labor which have been expended on these volumes in preparing them for publication. They embrace the life-work and the concentrated wisdom of a generation of the wisest and most experienced cultivators of our own times. In the language of our worthy friend, Mr. John J. Thomas, "*No other similar institution has attempted so much as this society, and no other has accomplished so much.*" Into these volumes this information is condensed so that not only the people of the whole country but those of foreign lands can avail themselves of it. Formerly these were published in octavo, but the last two are in quarto form, and constitute, as I have before remarked, a pomological library in themselves. Especially is this the case with our Catalogue of Fruits, embracing, as it does, columns for fifty different states and districts, into which are compacted the lists of fruits for each. These states are grouped into divisions, somewhat similar in climate, and other characteristics affecting their culture, the names of the fruits being all classified and arranged in alphabetical order, with their synonyms, and with marks indicating their value for each section of our country.

General Chairman of the Fruit Committee, Mr. Patrick Barry, is constantly in correspondence with the various state and local committees in regard to the merits of the fruits which come under their notice, thus establishing the value of each, so as to secure approved lists of the different species of fruits cultivated in this country. Nor should it be forgotten that all these services have been rendered without any pecuniary compensation to our officers, except to a secretary for a few years. And here let me express our obligations to Mr. Henry T. Williams, secretary *pro tem.* at the session of 1873, for his liberality in tendering the sum which would have been his due for his services in the compilation of our last volume of proceedings, and also to our secretary, the Hon. W. C. Flagg, for the generous interest in the welfare of the society which prompted him to decline the usual salary; so that the services of all officers are now rendered gratuitously. Especially to be remembered with gratitude are the faithful and efficient services of our treasurer, Dr. Thomas P. James, who, from the organization of the society, has performed the duties of the office without any other recompense than the satisfaction to be found in their conscientious discharge. Our funds, being all derived from membership, have never been abundant, and some incidental sums have been occasionally paid to keep a balance in the treasury; but were they more abundant they would materially assist in promoting the objects of the society and the dissemination of its publications; and permit me to say that no better disposition can be made of this world's goods than to give a portion to our society, so that its bureau might be in constant working order, with ability to distribute its publications throughout the country.

In this connection, I think it proper to state that one example worthy of imitation

now exists in the generous intentions embodied in a will, already executed, by which the American Pomological Society is to receive ten thousand dollars at the decease of the generous devisor, which we hope may be far in the future. Let others go and do likewise!

[To be continued.]

Notes on Conifers.

BY JOSIAH HOOPES.

NOTWITHSTANDING the experience of a single individual proves nothing as to the hardiness of a certain class of trees, yet it is interesting oftentimes to hear how others are succeeding with the more variable species. I say it proves nothing, because, in many instances, the experience of a neighbor may perhaps be almost the reverse of our own, with the same variations of climate, and to all outward appearances the same character of evil.

We have very much to learn about the diseases and constitutions of our trees, for our conclusions heretofore have been in a great measure based upon "guess-work," whilst ignoring the fundamental laws that govern the life of the vegetable world. Trees that have been once injured by the winter are more liable to succumb to the cold of the succeeding season than those not previously injured; their organism appears to be affected without giving an outward evidence, in many cases. Another point too often overlooked is the need of moisture during excessively cold weather,—as a drought during an intensely cold winter will not unfrequently destroy certain so-called hardy species, which otherwise would not be affected.

Conifers are somewhat peculiar in not showing their state of health until the growing season arrives, many species looking apparently all right, and lulling us into a belief that they are in excellent health, only to be deceived after a few warm days show the true state of things.

Among the newer Spruces, the *Abies polita* has proven entirely hardy, beyond a doubt. The latest novelty among our native species, *A. Engelmanni*, does not lose a leaf; it is entirely reliable. *A. orientalis* and *A. obovata* maintain their past unexceptionable high character. *A. Smithiana*, or, as it is usually known, *A. Morinda*, has been severely cut up, save when well protected. *Menzies' Spruce* has done reasonably well, but it presents a somewhat stunted appearance. The new Japanese Spruce, *A. Alcocquiana*, is entirely uninjured, and I now place confidence in its ability to endure our climate.

Among the Firs, the *A. firma* is one of the most distinct and valuable. During the late winter and spring, *A. Nordmanniana*, *A. Pichta*, *A. Cephalonica*, *A. nobilis* and *A. grandis* have all preserved their foliage well, and are now growing vigorously. The unreliable *A. Webbiana* and *A. Pindrow*, as usual, are badly injured. *A. bracteata* will persist in dying every winter,—I am done with it in the open air. *A. Pinsapo* has wintered tolerably well, but I took the precaution to protect it with evergreen brush.

Among the Hemlocks, I am pleased to say that *A. Albertiana* and *A. Pattoniana* (whether distinct species or not, I am not yet prepared to assert) have stood the test nobly; although an English grown specimen of *A. Mertensiana* is dead, root and branch. I have the same record to make with *A. Douglasi*, a magnificent tree, but one that persistently declines to stay alive in my collection. The *Cunninghamia Sinensis*, *Cephalotaxus* family, and the *Torreyas* look pretty well only; I wish I could say more. The Umbrella Pine, *Sciadopytis*, is entirely reliable; not only during the past winter has it stood the test, but for several years past. Lovers of beautiful trees, please make a note of the above. As for the *Sequoia gigantea* (California's Big Tree), *Cupressus Lawsoniana*, and *Cryptomeria Japonica*, my patience is entirely exhausted in endeavoring to save them.

The Yews have fared unusually bad, this season; although not entirely killed, they are all, with probably two exceptions, disfigured. The two which have weathered the winter are *Taxus cuspidata*, from Japan, and our own

native species, *T. baccata var. Canadensis.* True, the many varieties of the English Yew are growing as vigorously as ever, but they were all badly scorched.

Among the Junipers, the *J. oblonga pendula*, one of the most ornamental little plants in existence, was badly cut up; as were *J. Japonica*, *J. sphærica*, *J. drupacea*, etc. The *Irish Juniper* generally did well, excepting in a few isolated instances.

The many forms of the *American Arbor Vitæ* are looking remarkably well,—all, indeed, I might say, excepting the *Heath-leaved varieties*, and that dwarfest of dwarf forms, the *var. pygmæa*. Two large specimens of *Thuja gigantea*, by being well protected, came through finely, but younger plants, although well covered with evergreen boughs, were nearly all killed to the ground. It is very unreliable. *Libocedrus decurrens*, upon whose hardiness I so much depended in past years, has been hurt badly,—at least, all the previous season's growth is injured severely. And even the *Cupressus Nutkaensis*, or, as it is often called, *Thuiopsis borealis*, was browned to some extent when the cold north winds had full sweep at it. *Thuiopsis dolabrata*, as usual, has had all of its branches curtailed, and now is anything but handsome. The different varieties of the *Chinese Arbor Vitæ* are all more or less injured, but they seem to possess the power of recuperating sooner than most other Conifers. Already, as I write, the young growth has covered the disfigured portion, and before autumn they will be as handsome as ever. As for the new *Retinisporas*, that nondescript genus, they are in capital condition; not a failure in the whole family to record. Whether they are deserving of a separate classification or not, according to botanical rules, they are peculiarly hardy and especially beautiful. The *Podocarpus Japonica*, the only species out of a very large genus that is reasonably hardy, has been hurt badly with me, yet usually it is quite reliable. Altogether, we should feel thankful that our trees have escaped so well, when we feared so much.

The Greenhouse.

Greenhouse for October.

THE season is now fast approaching when the only floral attraction must be indoors, and at the present time plants in flower must receive special attention to prolong the season of blooming, for the winter blooming plants are yet scarcely in full flower, and most of the summer bloomers are over for the season. If there is spare room, a few specimen Coleus, late Caladiums and bright colored Dracænas will give color and make the house temporarily gay until flowers are more plentiful. A few of the better varieties of Cannas if taken up before checked by frost will make a show during winter and be useful for cuttings—the shoots for mixing in large vases of flowers. After this time a slight fire may be required, cold nights, even in a cool greenhouse, for in this latitude we occasionally get quite sharp frosts for a few nights, although after a few cold nights there is often none for a considerable time, but it is necessary to be prepared.

The season has been so wet, that probably in some cases, laying in a stock of soil has been postponed until the present time; if so, no time must now be lost in securing a full supply, for it is not likely to be in better condition later in the season.

Any outside painting not yet finished must be pushed forward, for after this time the roofs remain wet late in the morning and become damp early in the afternoon, so that the painter's day is short.

Large plants of Camellias, Azaleas, etc., should now occupy their permanent places, to be filled in with other plants. See that pots and plants are clean and a fresh surface of sand or ashes placed on the benches before setting the plants.

Climbers on the roof must be thinned out or cut in if too thick, the remaining shoots can be trained in closer to the roof. Such plants as Passiflora princeps we find seldom require much cutting, for we cut the flower shoots and also some of the strong shoots

without flowers for decorative purposes. Thunbergia Harrisii will commence flowering at the end of the month, and will not require cutting until spring, but this is a light growing plant and is best trained in close to the wire, for the racemes of flowers will hang down. Tacsonia Exoniensis is a capital addition to our list of greenhouse climbers; it is a lovely color and a very free bloomer when planted out, but must have a liberal cutting after blooming or it will overgrow everything.

Lapageria rosea will now be in full beauty. The flowers of this lovely climber are much larger and brighter in the winter than earlier in the season. The flowers of this plant are charming for baskets of cut flowers, and they last a long time. The white variety is more lovely then the rosea; we have it in flower at the present time, and visitors admire it more than any other flower. It is unfortunate for growers of limited capital that this plant is, and always will be, high priced. If it is offered for sale below ten dollars, buyers may conclude that it is not the true variety.

Eucharis, in variety, required to flower during winter must be kept warm and receive plenty of water. It is best not to syringe the foliage after this time; the wet often causes the leaves to spot; but wash the leaves with a sponge and soapy water occasionally, keep the plants rather dry for a short time before they are required to flower, but not dry enough to turn the foliage yellow; this will cause the flower stems to throw up. The Candida variety is very useful for bouquet making, and is, if possible, a freer bloomer than either Amasonica or Grandiflora. Small plants in four-inch pots have flowered several times during the summer.

Marantas will now require less water and kept as warm as possible, and unless the temperature is very high, the foliage must not be watered, for it is easily discolored and the beauty destroyed. If red spider is troublesome, wash the leaves with a mixture of soap and sulphur, but unless grown in a very dry, hot place, it is seldom any trouble. It must be remembered that tubispatha looses its foliage in the winter, but most of the other species are evergreen.

Alocasias will require the same treatment as advised for Marantas. Be careful not to get them too wet or the roots will decay, and if allowed to lose all the foliage, the roots often die.

Anthuriums will require but little water during winter, generally a sprinkle over the surfacing moss with an occasional watering is sufficient, especially if the plants are grown in a temperature of fifty or sixty degrees. We expect these plants will be grown very extensively when better known, they are so little trouble, and where a quantity is grown, it is in flower all the year. Cut flowers in water will last for weeks.

Camellias.—A few of the early plants of such varieties as Lady Humes Blush, will now commence to open flowers, and will be useful when there is a demand for these flowers so early in the season; the flowers are usually small, but other flowers are scarce and the size is not noticed so much as later in the season. A good washing of the foliage with a sponge not only improves the plant, but the foliage looks as if fresh varnished. The same remark refers to Gardenias; if any insects infest these plants, a good washing with soapy water to which is added a small quantity of kerosene, will kill the insects and much improve the look of the plants, but if Gardenias are planted out in the open ground during summer, insects are seldom troublesome, and the plants are in much better condition than if grown in pots.

Azaleas will be generally at rest excepting a few of the late growers and young plants. Give plenty of light and air and a good soaking of water when necessary, but large plants will not become dry very fast at this season unless standing in a very dry place. Mention of a few of the best old varieties may be useful to some of our readers. The sorts mentioned are all good and distinct flowers, of good habit and low priced.

Flag of truce is no doubt one of the best double white varieties for cut flowers.

Amœna, semi double, good for bouquets.

Alba illustrata plena, good double white.

Belle Gautoise, lilac, edged white, carmine blotch.

Bernhard Andreas, bright rose, very double.

Borsig, fine double white.

Chelsonii, light orange, scarlet.

Duc de Nassau, rosy carmine, semi double.

Duchesse de Nassau, fine rosy scarlet.

Eulalie Van Geert, variegated.

Exquisite, pink edged, white.

Leeana, fine large white.

Model, fine rose, splendid shape.

Narcissiflora, double white.

President, salmon red, margined white.

Reine des Pays-Bas, white spotted amaranth.

Rosea superba, fine rose.

Souvenir de l'Exposition, white striped and spotted rose.

Stella, pale orange, shaded violet.

Souvenir du Prince Albert, fine double, rose edged white.

Gledstanesii formosa, white striped carmine.

We might extend the list to hundreds of varieties of good, poor, and indifferent sorts, including a large number of distinct and excellent varieties, but few of our readers have space to grow more than a dozen or two sorts, and those named, include the most distinct in each color with several white varieties which are in demand for cut flowers.

Roses in pots for winter flowers must now be protected from heavy rains. It is best to plunge the pots in sand or ashes, it keeps the roots moist without frequent watering. If there is any appearance of mildew or green fly, it had better be checked by a good washing with tobacco water in which some soap has been dissolved, and a little flower of sulphur mixed. A washing with this is a good preventive at this season, and does the plants no harm. Roses on roof should have all the weak useless wood thinned out, the long shoots shortened and tied into place and receive a good washing with the above mixture. There is often some mildew on young growth of plants on roof caused by cold wind in giving air at top of house; this is difficult to prevent entirely with a mixed collection of plants growing in the house; if it was only roses we might fasten thin canvas over openings and give less air, but, by doing this, other greenhouse plants would suffer. Another frequent cause of mildew is getting the plants dry at the roots; this may be frequently seen out of doors in autumn, when weather is very dry and heavy dews at night.

Winter forcing plants must be potted at this time, such as Deutzia gracilis, Astilbe, Japonica and hardy Rhododendrons and Azaleas for cut flowers. These plants can be either potted in as small pots as possible, or if only required for cut flowers, several can be placed together into a box, which will occupy less room; the plants can remain in a shady place outside until hard frosts commence, when they can be placed in a cold frame or cold cellar until required for forcing. It is well to have a double quantity of these hardy plants to be able to force one batch and rest the other for a year. Plants which are grown in a strong heat for early blooming seldom make much wood the same year, in fact many of them are not worth growing again and had better be thrown away in the spring. A few young plants propagated each year will keep the stock up for that purpose, and will make much more growth than old exhausted plants. We often receive plants of new species which have been so forced for stock, that it is difficult to make them grow at all; the best we can do is to get a few small cuttings and throw the old plants away; it is the same with early forced shrubs, they make their growth out of season, and probably most of the growth is cut with the flowers. There is seldom room to keep the plants indoor to make any growth, and it is late in the season when planted out before they make a start, so there is little flowering wood for the next season, but if the plants get a season's rest from forcing, they usually do well the season after unless they are entirely exhausted; in this case it would be best to discard them instead of being to the trouble of planting.

Cannas and Dahlias should be taken

up before the foliage is much injured by frost or they will not keep well. Under stages in cool houses or in a dry cellar free from frost is the best place to store these roots. Many of the new Cannas are splendid, both in foliage and flower. We shall give a descriptive list at the end of season of all the best. This will give our readers the opportunity of selecting dry roots if they wish. We cannot give heights until end of season, for many sorts grow much stronger here than in Europe, so that their height is often much exceeded here.

What splendid plants the Bananas are in this climate for subtropical gardening, especially Musa ensete. The foliage which is on the plants when planted out usually becomes unsightly and the plants are very scrubby for a time, but soon recover, and each new leaf increases in strength and beauty, so that the wind does not injure it unless planted in a very exposed situation.

The *Cyperus papyrus* is another valuable plant for this purpose, but it requires planting in a moist place or to receive abundance of water. These plants have a much more noble appearance either as single plants or planted in masses than the general run of bedding plants, and may be employed either in a small garden or a large park.

Ficus Parcellii is one of the best variegated plants ever introduced; it is a free and yet compact grower, and as easy to cultivate as the old India rubber plant. It fruits when quite small, and the fruit is variegated like the foliage. This plant should be in every collection. We may mention that it does not import very well, for out of three we imported, two were dead, and several people have informed us they could not import it alive, but it can be obtained in this country at a moderate price.

Caladiums will be generally at rest by this time. The pots can be placed under the stage and kept dry in a temperature of about sixty; if placed in a cool house the bulbs are sure to decay. We find they keep best in the soil in which they were growing.

Cyclamens if not shaken out from old soil should be done at once, and potted in same size, and a little larger pots according to size of bulbs; these plants grow best in the warmest part of a cool house. Seedlings must be potted into small pots and grown on in a warm place.

Primulas and Cinerarias must be potted into blooming pots and kept growing freely.

Pelargoniums must have plenty of air, and when rooted freely will require more water. The points of the shoots must be pinched out to induce a bushy growth, but be careful to stop all the shoots at one time, or those not pinched will take the lead and the growth will be irregular.

Geraniums for winter blooming will want a light, warm place with plenty of ventilation. These plants must not be crowded together or but few flowers need be expected. Young plants must be kept free from dead leaves and be allowed to get rather dry; the growth is hardier and the plants keep better.

Verbenas.—Keep as cool as possible with ventilation day and night when weather will permit; a little frost will do less injury than a close, warm house; fumigate frequently to prevent green fly and thrip, and never allow the plants to become dry; the same rule is applied to other hardy bedding plants.

Orchids.—There will be but few of these plants in flower this month, in fact this and the two previous months is the scarcest time in the year for these flowers, partially from the cool weather this summer and from the great length of flower shoots. We had Peristeria elata in flower from the beginning of July until September; if it was possible to induce this plant to flower at Easter it would be worth any money. We have still Cypripedium Rocali in flower and some of the Lygopetalums commencing to flower; these with a few Odontoglossums and Oncidiums are about all to be expected in bloom at this season. Most of the plants will be at rest and will require less water; the syringe can be dispensed with except for plants on blocks; these will usually require water on bright days if grown on the bare block, but not so often if the roots are growing in moss. Most

of the Dendrobiums will have finished growing and will require but little water and abundance of light, but do not keep them dry enough to shrivel or they will not flower well and flowers will be small.

Nepenthes require a strong heat at all times, and the plants being natives of swamps must be moist at all times. These plants are among the most easy to cultivate if these few requirements are noted.

Primula Japonica.

AFTER several years' trial to obtain plants from purchased seed of this handsome Primula, I am, through the kindness of a friend, at last able to say a word in its favor. I do so particularly, because on many occasions, on making inquiries about this plant, I have invariably been told that it was of poor quality—in fact, not worth growing; from such statements I dissent. It can be grown well, particularly from some ripened seed, if sown as soon as saved. It should be sown thinly on a compost of light loam, leaf-mould, and fine, clear, sharp, silver sand, and covered lightly, or, what is still better, after sowing gently shake the soil in pots or pans by striking on the outsides with the palms of the hands, after which gently press the surface down with the bottom of a pot, or, if convenient, a circular piece of thin board,—such as is used in the manufacture of cigar-boxes answers admirably for light soils,—then cover with a piece of tissue paper. Under such treatment the compost on which the seed is sown must be fairly damp, but not wet, which dampness it will retain long enough for the seed to vegetate if it is not allowed to become dry. Place in a cool but close pit—a hand-glass will do, if nothing else is convenient. As soon as the seedlings are up, and fit to handle, prick out into the above-mentioned compost in pans or boxes, keep close, and moderately shaded for a few days. As soon as the plants begin to encroach on one another, shift into large sixties, using the above compost. Keep in a cool frame with partial shade, and shift as requisite, using with the above compost some decomposed cow manure if possible. After the plants have been transferred to six or seven-inch pots, according to sizes, and as soon as the roots have taken to the fresh compost, and are coming in contact with the sides of the pots, a little liquid manure (diluted) from either cow-house or stable, particularly from the former, will be very beneficial. Encourage growth as much as possible. During October, or the beginning of November, the plants will be showing symptoms of resting; diminish the supply of water, and keep the plants as near the light as possible, so that the crowns may properly mature. Although the foliage will die off, the plant must not be allowed to suffer through want of moisture. On the return of spring, and as the plants show signs of growth, increase the quantity of water, giving at the same time, proportionate with growth, liquid manure. As soon as the plant has thrown up its first flowering scape, and the first whorle of flowers commences to expand, partially shade during noon on bright days, and you will have flowering plants which, on a small scale, will be fit to compete with more pretentious ones—plants with foliage from twelve to fourteen inches in length, completely hiding the pots, and with flowering scapes, two or more in number, each plant from eighteen to twenty-four inches in height, with from three to six whorles or tiers of flowers each. The plants succeed well planted out here, though not so luxuriantly as in-doors. There is a row of it here as a centre plant in a circularly planted border of Myosotis dissitiflora, which is now taking the place of early Tulips, and I consider that it does not look at all amiss.—*C. P. in Gardeners' Record.*

Echeveria Secunda Glauca.

THIS very useful and effective plant cannot be too extensively grown for the purpose of edging beds in the flower garden. It is of very easy culture, and can be increased easily by off-sets, which they produce freely in their growing season; their nice green fleshy leaves, compact habit, and their numerous spikes of orange pitcher-like flowers,

which hang so gracefully over the edges of the beds, render them great favorites in the flower garden. It is used very extensively in London. The sides and ends of the beds are raised fully nine inches above the turf, and are made up of an admixture of clay and cow-dung, which becomes very adhesive, and, therefore, sticks together like cement, thus forming a kind of basin, thereby securing the water that falls from the sky, or otherwise, to the great benefit of the occupants of the beds. In the edging of these beds the Sempervivum of sorts used with Echeverias; the former are planted very closely together in the sides and ends of the edging surface, and the latter on the top, thus producing a very pleasing effect, alike when viewed from a distance and when looked direct on; thus it will be seen that, though the sides and ends of the beds are raised considerably above the turf level, the whole is furnished in a very effective manner, and what little of the surface of the edges can be seen appears as if a plasterer had been to work on them, they are so smooth and firm. The Echeverias are very easily wintered. We winter hundreds of them in 60 and 48-sized pots (the old plants in the latter, and the off-sets in the former), potted in soil from the waste soil heap, moderately firm, and from the time that they have been potted (October or November) they receive no water until the following spring, and treated in this way we do not lose two and a half per cent. of the plants. Last autumn a correspondent of the *Gardeners' Chronicle* recommended tying them up by the heels in a dry shed as the best and safest (and I should say the easiest) way of wintering the Echeveria; therefore I thought I would try the experiment myself, and accordingly I had five or six plants tied together by the heels and suspended from the stage in one of the greenhouses, and now (May 17) they are quite fresh, and have produced off-sets, and emitted a host of little white feeders. I believe thousands could be wintered in this way, by tying them closely together on strings, and then tied up to nails driven into the joists in some dry shed or loft—tied up to rafters where the room would not be missed. —*H. W. Ward in Gardeners' Record.*

A Sorcerer and an Ink Plant.

MM. Rabuteau and Pryre, well known French botanists, give a description in *Galignani* of a noted plant which grows in the vicinity of the French settlement of Gaboon, and which is called by the name of M'Boondoo. It is very difficult to procure, because the sorcerers of the country have always concealed the plant with great care from the profane, so that its properties are in a great measure a sacred mystery. These botanists, however, succeeded in finding it themselves, in a moist soil, in the neighborhood of the river Como, at thirty leagues from the frontier. The roots vary in thickness from about one-half of an inch to one and a quarter, and their length is from twelve to eighteen inches. The rind, whether fresh or dry, is reddish outside and a vivid red within. Both root and bark are exceedingly bitter.

There is a remarkable plant, peculiar to New Granada, which, if ink-makers could only grow in sufficient quantity in this country, would doubtless prove a profitable enterprise. The plant in question is commonly known as the ink plant, and it is simply the juice that is used, without any preparation. Its properties seem, according to a tradition which there prevails, to have been discovered during the Spanish administration. A number of written documents, destined for the mother country, were embarked in a vessel and transmitted round the cape. The voyage was unusually tempestuous, and the documents got wet with salt water. Those written with common ink became nearly illegible, whereas those written with "chanchi"—the name of the juice—remained unaltered. A decree was therefore issued that all government communications should in future be written with the vegetable juice, instead of the prepared article. This vegetable ink is of a reddish color when freshly written, becoming perfectly black after a few hours, and it has the recommendation of not corroding a steel pen so readily as ordinary ink.

A Leaf Plant.

THE following story of a singular plant is told by Rev. Dr. Babb, corresponding editor of the "Herald and Presbyter," who writes from San Jose, Cal., as follows:

A friend, whom we were visiting a few weeks since, gave us a leaf from a plant in her window, and told us to pin it up where it would get as much sunshine as possible, and watch the result. It was an oval-shaped leaf about two inches long. We fastened it to a sash on the eastern side of the house. After a few days there were signs of life at one of the points on the edge of the leaf. The end of the vein was expanding like a bud. Slowly the development went on until a tiny plant was formed there, with roots, and stem, and leaves. Without soil, without moisture, without any sign of a germ, from just such a point as you find a score or more of on the edge of an ordinary leaf, this complete specimen of vegetable life came forth to excite our wonder. When the new plant was an inch or so long we planted it in a pot, and it is growing there.

Before we cut off this first plant another point on the edge of the leaf began to bud. Soon roots appeared, then a stem, and then branches, as in the former case. We have now two plants in pots from that leaf. The production of those two seems to have exhausted its vitality, and it has begun to shrivel. We are assured that each leaf of the plants we have potted will, when full grown, have this same power of producing perfect plants from the ends of their veins.

I can find nothing in any work on botany that I have access to about these plants, and their peculiar mode of propagation. They are rare here, and nobody seems to know where they came from. They are called "air plants." But the air plant of Wood's Botany is simply a parasite. It attaches itself to some other vegetable, and draws nourishment from it. But this is not a plant foreign to the leaf, and growing upon it. It is a plant that grows out of the leaf, and that when mature bears scores of just such leaves. Well may we cry with David, "O Lord, how manifold are thy works!"

The Flower Garden.

Carpet Bedding.

WHERE hardy plants are used this is, perhaps, the easiest, certainly the cheapest, and, possibly, the laziest style of gardening. I would wish to raise a warning voice to amateurs on the subject, having felt the demoralizing effect of the last superlative in myself, and, therefore, I can speak from experience. I will not own how many seasons the following arrangement of a border and beds has stood. As all looked as well as possible, uninjured by any weather or season, we were thankful to let them stand, having, in our small way, always more trials, experiments and work on hand in the garden than we can get through; and to have a border that required no digging, no manure, no time or labor, and yet to be filled with increasing and flourishing plants, is a temptation difficult to resist. The border is eighty-six feet long and five feet eight inches broad, exposed to the full sun, which is reflected off a low wall at the back, and trees beyond the wall, which intercept rain, dew and frost, and whose roots, below the wall, eat up all nourishment in the soil. In short, a very hot, dry and exhausted border, and suitable, therefore, for succulents, hoary and variegated plants. The whole is a carpet of Sedum acre aureum, margined at the back with a row of Sempervivum tectorum, and in front with S. calcareum, a narrow band of Sedum lydium forming a green line between the grey Houseleeks and the Sedum acre when it has got its yellow growth on. A line of purple Crocuses within the bottom verge completes the border in front, and behind the native Houseleeks is a row of Rosemary, which, when first planted, admitted of a variegated Pelargonium between each plant in summer, or a white variegated Kale in winter. Now, in spite of constant cutting for the inmates of the Royal Infirmary and the Blind Asylum, the Rosemary this winter will bear nothing between, so it is simply an aromatic, spiky edge. In the carpet of gold

Sedum are cut out sixteen circles of grey Sedum or Saxifrage, alternating with small Houseleeks, as Sempervivum montanum, etc., the object being that these rings show out of the carpet by color or form, either when it is green or yellow. The circles are filled in summer with bright-leaved Pelargoniums, which cannot have too much sun, and in winter with purple and lilac variegated Kale. In the flat piece of groundwork between each circle is a single good-sized plant of variegated tree Ivy, Cineraria acanthifolia, Yucca, or Aloe. In summer a tuft of blue Lobelia was dotted at the four corners of the flat piece of gold Sedum, which in winter is replaced by Carex japonica variegata, Snowflakes and Scilla bifolia. The Leucojum are in flower while the Sedum is still green, and the blue Scillas tell when it turns gold. This arrangement certainly requires the minimum of time, trouble and expense, for the good effect it has. Some fresh soil, of course, is required before planting the summer plants, and the Sedums are cut into shape in spring, where they have encroached on rings or margins. When the plants on the wall—Roses, Chrysanthemums, Clematis, Smilax, Jasminum nudiflorum, Ampelopsis Veitchii—require pruning, training, or to be gathered, careful, steady footsteps do the Sedums no harm, rather otherwise, and weeds can hardly make their way through the consolidated groundwork. The soil is so utterly dry and ash-like that Verbenas and Pelargoniums have stood the whole winter, and I have an idea that we might venture to leave out many a plant (or even plunge them for the winter in such a border) that would suffer or be killed in properly dug and worked ground, and this, I fancy, is the great advantage of the carpet-bedding, and one that admits of progress and experiment; at the same time the mere saving of trouble is such a temptation, and, indeed, so much of a necessity in many cases, that a warning voice must be raised, or it is possible that this fashion may end in a standstill—worse, as far as progress is concerned, than even the summer bedding, when carried to excess, led to. The centre beds consist of a Yucca or variegated Aloe, centre plant, the Aloe replaced in winter by a Phillyrea or Box; groundwork of the common grey Sedum dotted with Carex japonica variegata, a ring of variegated Ivy, and edged with Crocuses. A few scarlet Tulips on the grey groundwork finishes off for spring. The groundwork of the opposite bed is the dark-leaved Ajuga orientalis fol. purpureis, dotted with Sedum spectabile, edged also with Ivy and Crocuses; and another pair of "lazybeds" are composed of a tender Cupressus (?), replaced in winter by a hardy evergreen and the Ajuga groundwork, dotted with Euonymus japonica aurea, and edged with Euonymus radicans variegata and Crocuses; when the dark blue flowers of Ajuga were in bloom these were charming little beds. The gold Euonymus has stood the winters of 1871, 1872 and 1873; it suffered in 1870, and my belief is that the drying effect of the groundwork has both kept up bright variegation (only one plant of fifteen having sported a branch back to green), and so checked a gross growth that in spite of the late and wet season the plants were in a condition to resist the thirteen degrees of frost we had here last winter. We find a Sedum groundwork (a solid sod) saves us fully six degrees of frost in the soil. We are near the sea, which often means no frost at all, and we can carry on our winter bedding work in such beds when we are stopped on uncovered ones. The roots and necks of the dotted plants are very considerably protected, and I think something useful and improving might be gained by experimenting on this system. One other disadvantage of a Sedum groundwork, and I have done. A neighboring walk (not much used) was so hopelessly dotted with the gold-tipped Sedum that any hoeing or hand-picking merely broke and spread it, and we had to skin the whole walk, and have a complete new coating of fresh yellow ballast, and thorough and repeated rollings. We flatter ourselves that we are safe until next year. Such an accident can be avoided by using this inveterate Stonecrop on beds of grass, not on a border with gravel walk. It is our intention to lift and rearrange our little succu-

lent border next spring, and collect there all our treasures in that department. The manure required to keep that border cool, and to feed plants of decent growth, would have gone far to supply us with Cauliflowers. It is a wise plan to turn one's disadvantages into advantages, and there is no end of study, variety, beauty and interest in a succulent border, easy to grow, difficult to know, and quite distinct from mere lazy carpet bedding. —*F. J. Hope, in Gardeners' Chronicle.*

New Plants of 1875.

AMONG many of the various lists of novelties we select a few Gladiolus which seem worth notice. As yet they are scarce and high to American purchasers:

Andromede.—Long spike of large and perfect flowers, of rich rose color, tinted with carmine and streaked with white. Large yellow blotch.

Astree.—Pure white, with violet carmine blotch and pale lilac throat; new shade of color.

George Such.—(So named in France.) Very dazzling orange red, slightly flamed with Carmine; fine, velvety carmine spots. Unique in color.

Giganteus.—Grand spike of large flowers; color, fine rose, shaded with cherry; upper petals striped with white, and spotted with dark carmine.

Grand Lilas.—Tall spike of beautiful, delicate lilac flowers, darkening towards the edges. A novel and exquisite color.

Hercules.—Superb flowers on a fine spike; brilliant, velvety scarlet, flamed with orange-red; violet blotch on a mauve ground. Wonderfully effective.

Lord Hawke —Very long spike and flowers of great size; fine rosy carmine with transparent throat, each petal being divided with a white line and spotted with white. Very remarkable.

Pactole.—Beautiful spike of pure yellow flowers with slight rosy border; lower petals shaded with darker yellow. A fine addition to the limited number of yellow varieties.

Garden Gossip.

Suggestive Notes.

Grapes in Pots.—In addition to the value of the fruit of foreign grapes, when properly grown in large-sized pots or boxes, under glass, they form as handsome an adornment for the table, or for exhibition purposes, as the gardener's skill can invent. Just now they need attention in the way of frequent syringing and a weekly supply of manure water, to induce a healthy growth and large clusters.

A good, strong one-year-old cane is sufficient to make a fruiting vine, if the requisite care is bestowed upon it the succeeding season. All that is necessary is to cut it back to, say, 2 feet in length, shift into a size larger pot, with a mulch of short, rich manure on the surface. As the buds push and show blossoms, pinch the shoots at the third bud beyond the bunch, and the non-fruiting shoots at about 9 inches in length. Pinch back the terminal shoot, of course, and, as the season progresses, again pinch as the growth requires. Syringing must not be so freely given when the flowers are expanded, nor yet when the fruit is coloring, but at all other times; it is the great secret of success in producing healthy vines and beautiful fruit.

A Fine Native Tree.—Just as the Magnolias are going out of flower, excepting the Great-leaved Magnolia (M. macrophylla) and the Yellow Magnolia (M. cordata), their near relative, the Tulip Tree (Liriodendron tulipifera), is a sheet of bloom. It may not be too much to say that it is one of the most beautiful of our native trees, producing attractive flowers, for although not as showy as some others, yet its tint is peculiar to itself, and the form, which resembles large tulips, is certainly very attractive. The foliage, too, so large and glossy, and, in a healthy specimen, such a fine tint of green, is not the least of its valuable features. A specimen standing alone on a large lawn, as we have occasionally seen it, imparts a suggestion of grandeur to its sur-

roundings. It is not difficult to transplant when quite young, say two or three years of age, but when six or eight feet in height it quite frequently fails.

Nursery-grown trees, however, give greater satisfaction in the end, when properly dug and replanted.

Fuchsias for Bedding.—The owner of a choice shady corner cannot have more beautiful plants for this situation than a bed of Fuchsias of assorted colors.

It is a mistaken idea that they will not live in the open air, as they prefer it, provided there is plenty of moisture and a partial shade. In varieties the large-flowered single kinds should have the preference for bedding, as being more showy. Attention must be paid to staking them carefully; and when any of the shoots exhibit a desire to ramble or to outstrip the others, pinch it back. The beauty of these plants is greatly enhanced by training them in a pyramidal form, with the branches gracefully curving down on every side.

Old plants with strong, woody stems may be formed into handsome, miniature trees, when planted out, and possibly succeed better than young specimens recently struck from cuttings.

Growing Celery.—We think the old-fashioned system of digging deep trenches for Celery, almost similar to the foundations for a barn, to be a foolish expenditure of time. Experienced gardeners say the dwarf solid varieties, of which the *Boston Market* is a good example, are the only kinds to grow; therefore, as height is not an object, what is the use in a deep trench?

A shallow, depressed, gutter-like trench is all that is necessary in this respect, but be sure that the soil is made deep and rich. In the earlier stages of the plant's growth give it as much moisture as it is possible to procure, but when the growth is of full size the irrigation may be abandoned, and the hilling-up substituted in its place. Some recommend not hilling-up until the plants are secure in their winter quarters, but, for early use, at least, this must be performed before using, of course.

The Cherry Crop.—The present season will long be remembered throughout many portions of the Eastern States, or, at least, the Middle States, for its bountiful crop of cherries. The first of any importance was the *Early Purple Guigne*, which was literally crowded with the weight of purplish red fruit.

Right after it passed away the *Early Richmond* put in an appearance, and although scarcely palatable for the dessert, has been very acceptable for cooking purposes. The *Elton*, which is one of the most reliable in all seasons, has this year overborne; indeed it would be impossible for trees to perfect more fruit than did some fine old specimens that came under our notice. The dry season has been quite favorable for the maturing of the *Yellow Spanish*, a variable cherry, which we only have an opportunity of testing once in several years; but for all that it is large, handsome and delicious when once obtained.

The *Black Eagle* is full, of course, and as to quality, every one who has cultivated it is willing to testify in its favor. The poor *Black Tartarian*, not poor in quality, but in constitution, is doing the best it can under the circumstances, and the few we get we are abundantly thankful for. Kirtland's Seedlings maintain their high standard this year as usual; they are bearing immensely, and very many of them are of excellent quality. *Kirtland's Mammoth* is truly huge in size, and really good in flavor.

But among so many candidates for popularity, and when all are doing their duty so well, we dislike to particularize too closely.

The Gentians.—This has always been considered an exceedingly difficult family to cultivate properly, as moisture, shade, and a peaty, gritty soil, are essential to their growth. It is useless to plant them in an ordinary flower bed, with the full rays of the sun shining upon them, although we know of instances where this has been done, and the owners wondered why their Gentians would not thrive.

The best of success may be assured by growing them in pots, placed in a pit, and

covered with whitewashed glass. The soil, as above stated, must be composed of peaty, gritty mold, and thoroughly drained. Give them plenty of moisture, but raise the sash a few inches at the bottom each mild day to allow a current of air to pass over the plants, else damp will ensue. We append a list of some of the most desirable for our climate:

Gentiana acaulis is quite dwarf, with thick, leathery leaves, and very large, rich velvety-blue flowers.

G. cruciata grows about six inches high, and produces numerous whorls of dark blue flowers. *G. bavarica*, or the true "Alpine Gentian," is not so difficult to grow if the proper conditions are observed. The bloom is very brilliant, and almost purple in tint.

G. gelida is a lovely species from Siberia, growing about a foot high, with pretty, pale blue flowers. *G. pneumonanthe* is rather perverse under cultivation, but a well established, healthy plant makes a splendid specimen. Large bright blue bloom, *G. verna*, or the "Spring Gentian," is one of the most desirable of the genus. The plant is dwarf in habit, with brilliant blue flowers in profusion.

Care of Lawns.—After all our talk about the beauty of our flower beds, and specimen trees, there is nothing that creates more admiration than a well-kept lawn.

To be above reproach it should be entirely free from weeds, have no inequalities of surface, and the turf must be short, thick, and deep green in color. In walking over it we should be reminded of the finest velvet carpet, as the tread indicates its quality. How to attain all this is easily understood, but not always practiced. A few short rules, however, may prove useful to some of our readers.

Mow frequently, say once a week, if the weather is not unusually dry, but the height of the grass must govern the period. The afternoon is preferable to the morning for performing the operation, as the machine does neater work when the turf is entirely dry. Although the frequent mowing eradicates most weeds, yet the few which remain must be pulled out during moist weather. Frequent rolling assists materially in forming a dense texture. A reasonable dressing of salt and plaster will benefit the growth, and a dressing in the autumn with old, decayed manure, is almost an absolute necessity.

The extent of the trade in Cinchona Bark is almost miraculous.

According to the report in the London Medical Record, the introduction of these trees into India has been about £70,000; and the net profit from the annual sales is put down at from £4,000 to £5,000. At a recent sale in Mincing Lane a lot of Moss Crown bark brought the unusual price of 5s. 9d. per pound; and altogether at this sale 23,646 lbs. were disposed of, realizing the sum of £3,350. Among medical plants the *Cinchona officinalis* takes the most prominent position.

Hall Box for Ivy.—Take a strong piece of board square or round, fasten castors (beadstead size) to the four corners, nail lath or hoops to form a rebate above and below, cover between these with table oil cloth brown or black. Make a number of vine or oak leaves of thick undyed leather, moisten and form veins and mould into shape, then dye with logwood or umber to suit the shade of oilcloth (the former gives a mahogany tint the latter walnut). Form grapes by tying small marbles in pieces of old kid or chamois skin, or procure acorns and oak branches. Take grape vine and form a lattice work by nailing pieces on the rebates from top to bottom and across, weaving in and out. Form a wreath of the leaves and fruit, and when dry varnish. These are elegant.

The Early Beatrice Peach has ripened finely with me this year. Trees planted in 1871 have borne a few each, which were mostly ripe and picked on the 23d of July, and were very handsome with bright color, beautifully red and mottled, juicy and excellent. Their average size was about $1\frac{3}{4}$ by $1\frac{5}{8}$ inches in diameter.—WILLIAM PARRY in *Rural N. Y.*

Gardening.

About Native Raspberries.

BY ANDREW S. FULLER.

A CENTURY or more has been devoted by our pomologists in the vain attempt to acclimate the foreign varieties of the raspberry, in this country. But to-day we are no nearer success than when the first plant or plants were brought to America.

Of course, there is a great difference in the seedlings produced from the *Rubus Idacus* of Europe, some being far more hardy and better adapted to our climate than others, but these variations are not due to climatic influence.

The seedlings raised by the late Dr. Brinckle of Philadelphia, are no more hardy or better adapted to cultivation here, than those raised by Souchett, in France, or Rivers, in England.

The Clark is one of the best and most hardy varieties of the European species which has been produced in this country, but it does not compare in this respect with *Belle de Fontenay* and *Merveille de 4-Saisons*, two French sorts which are as hardy as any of our wild sorts, not excepting those of the Black Cap species, *Rubus occidentalis*. From the above it may readily be seen that it will not do to make the sweeping assertion that some writers have, that "*all* foreign sorts are tender," any more than we would be warranted in claiming that *all* native varieties were hardy.

But the failure of a majority of the foreign sorts in this country is not due so much to their lack of hardiness, as to nonadaptation to climate generally. The heat of summer tends to enfeeble their vigor, and mildew destroys the healthy functions of both leaf and stem, hence the plants are incapable of withstanding the cold of winter. As a proof that it is the hot, dry weather in summer which is so disastrous to the foreign sorts, we have only to compare the plantations in the middle States with those of the northern. Many of the foreign sorts succeed in a few circumscribed localities, but outside of these the native species and their varieties are mainly to be depended upon, both for field and garden culture.

The wild red raspberry, or *Rubus strigosus*, furnishes us the best fruit, both in color and quality. It is a very widely distributed species, but more plentiful in the extreme northern States than in the middle or southern. Wild varieties are numerous; in fact it is not difficult to find very distinct sorts in any locality where this plant abounds.

Quite a number of these natural or wild varieties have found their way into cultivation, but many persons object to cultivating any of them on account of their tendency to produce a great number of suckers from the roots or subterranean stems. This I should consider a great fault if it were not so easily remedied, for once or twice cutting them off with a hoe or cultivator during the summer, will prevent any injury to the stock plant, and a man who does not go through and cultivate his raspberry plantation this number of times in the season, deserves to fail.

Among the best known varieties of this species are the following:

Kirtland.—This is one of the oldest, but is still one of the very best. The berries are only of medium size, slightly conical, bright light red or scarlet, quite firm in texture, and ripening very early. This is an excellent market variety on account of earliness, color and firmness.

Turner.—This is a western sort, originating, I believe, in Illinois, where it has been highly commended. It is exceedingly hardy and prolific. It is a larger variety than the Kirtland, and the berries are of a bright, handsome color, but too soft and brittle for market; at least this is my opinion of it after three years' experience.

Wilmington or *Susqueco.*—The habit of this sort is somewhat dwarfish, the canes being short and stocky. The berries are rather large for a native sort, round, bright light red, and quite firm. A good market sort.

Cuthbert.—This is a new sort, of the pure native stock lately brought to notice, but the most I can say of it is that it promises well.

Herstine's Seedlings.—Of these the *Herstine, Elizabeth* and *Saunders* have all failed to come up to "expectations" in my grounds. The first is the best of the three, but it is not as hardy as the *Clarke*, a well known foreign sort, while in quality the fruit is inferior. But several years since, while visiting Mr. Herstine's grounds, I noticed several unnamed seedlings which, in my opinion, gave promise of more value than those selected for propagation and dissemination. I requested Mr. Herstine to send me a plant each of two sorts which I selected, and the next fall he did so, labeling one *Herstine's* 0, and the other *Herstine's* 100. Both have proved to be perfectly hardy, vigorous and productive, although the berries are not as large as the one named *Herstine*, but firm and good. If any one else procured these sorts from Mr. Herstine, or from the grounds since his death, it would be interesting to know how they have succeeded. I have no plants to spare of either.

Purple Cane Raspberries.—The "Old Purple Cane" raspberry, as it is usually called, was cultivated fifty years ago quite extensively on Long Island, the fruit being sold in New York markets. It is still an excellent sort for home use, but too soft and dull-colored to compete with later introduced sorts. These purple cane and purple fruited raspberries doubtless are a distinct species from the native red, *R. strigosus*, and the black caps, *R. occidentalis*, but it has never been recognized or described by our botanists, hence remains nameless as a species. It is occasionally found in high, rocky situations in the northern States, and especially throughout the southern tier of counties in New York, as I have seen it in three myself, and received it from a fourth. The "old Purple Cane" takes root from the tips of the branches as freely as the Black Caps, but the *Philadelphia*, which is unquestionably of the same species, does not. The *Hildreth* is another, and about intermediate between the two just named, and the fruit is also very distinct, being darker than either, and covered with a dense bloom. But it matters not how much the native wild sorts differ in growth, size or color of the fruit. They are always recognizable as belonging to this distinct species, which, for the want of any other name, we may call *Rubus purpurea.* The fruit is never black, although sometimes of a dark purple or maroon color, and the epidermis on the canes is also of a light or dark purple, covered with more or less blue bloom, the same as the fruit.

The *Philadelphia* is the best variety of this species yet introduced, but there are, doubtless, others to be found worthy of cultivation.

Black Cap Raspberries.—Of late these have become quite popular, and in a "*cholera season*" they would doubtless be very beneficial, medicinally, to the community. They are certainly hardy and productive, but it is not every person who can eat them with impunity; still, there are enough who can make their cultivation, both for home use and market, worthy of attention. Having gone through the whole catalogue of varieties, numbering several dozen, I would rest on the following three, ripening in the order named: Doolittle's Mammoth Climber, Seneca and Miami.

"War of Races" in Gardening

BY A. S. FULLER.

OUR philosophers frequently give us very thorough dissertations on the subject of "war between races," wherein they show us that a continuous fight between the different races of plants, as well as animals, is necessary to the existence of each.

It is true that many persons may find it quite difficult to believe that one beautiful creature was created only to be destroyed by another, still the facts all seem to point that way, whether we accept them or no.

But if a man wants to feel the dire necessity of a vigorous and continuous war between races, he has only to attempt the culture of fruits and flowers, or, in other words, have and keep a good garden. Of course I have no inclination to look upon the dark side of any picture, still, a little or a good deal of shade may tend to make us enjoy the sunshine more.

Almost the first appearance of the succulent stems of asparagus in spring is greeted by that imported pest the asparagus beetle, *Criocerus asparagi*. It is a beautiful little insect, of a yellow color, ornamented with black lines on the inner side of each wing-cover, also three black spots reaching to the outer edge. Pretty as this little pest is it will soon deposit eggs upon the asparagus stems, and from these hatch a small, dark colored slug-like larva, which soon shows what it can do towards devouring the plants. Turn in the chickens and a fight between races will soon commence, and although it wages hot and long, the beetles frequently come out masters, for there are several broods of this insect during the season, and as soon as the asparagus stalks reach a height of three or four feet, the beetles can feed and multiply beyond the reach of ordinary fowls. Dusting the plants with freshly slaked lime at this stage, will, however, destroy the soft, black grubs.

A few warm days in spring starts our melons, beans, and various vegetables and plants, and then comes the many species of cut-worms, some cutting off the plants below the surface, others climbing up the stems in search of some succulent leaf, which is more agreeable to their tastes than those lower down. For the next month a constant fight must be kept up or our crops are lost, and even with the most vigorous attack the worms frequently gain the battle.

Beautiful moths flitting about the lamps at night, excite our pity when their wings are scorched. Still, many of the number are only the parents of the greasy-looking cut-worms, which are eating up our melons.

The grapes come into bloom, promising a fine crop, but the "Rose Beetles" are at hand, and unless some more tempting food is near by, they strip the clusters of flowers, leaving us only bare stems, or bunches severely thinned. Hand gathering, or shaking off into vessels half filled with hot water, may reduce the number of this pest, but total extermination is not to be thought of with our present knowledge of its habits. Sometimes the cherry trees, roses and various ornamental plants suffer severely from the attacks of this widely distributed pest. There are few birds that will eat this beetle, the crow being the only one which I ever saw making a "square meal" on what is erroneously termed "Rose Bugs." But almost everybody looks upon the crow as an enemy, hence the scarcity of this intelligent and useful bird where it is most needed, viz.: in our orchards and gardens.

The apple trees scarcely come into bloom before the codling moth is ready to drop an egg into each flower, the grub penetrating the growing fruit, causing many to drop immature, and others to reach the cellar as wormy apples. The canker worms also quite frequently strip the trees of foliage, and tent worms help the destruction of the same. Moth traps, both patent and home-made, are brought into requisition, and although thousands of the pests are destroyed, enough are always left for seed the following year.

Our plums are destroyed by curculios, and the crab apples fare very little better, if none of the former are about to supply a better nidus for the eggs of this hard-shelled pest.

Cucumber beetles, squash bugs, and potato beetles in half dozen species or more, come along in good time to try our patience and consume time which we would fain use in a more agreeable manner.

Peaches are stung, and the trees are bored with borers, and even our pine, spruce and other evergreen trees are preyed upon by various species of insect pest, and, while parasites multiply upon them, and birds destroy, and we enter the fight with poisons and apparently superior knowledge and power, all avail little in keeping the devastating hordes in check. "War of races," truly, but it is like the minute polyp which builds up the coral reefs upon which the staunchest ship may crumble as though made of unburnt clay.

A Beautiful Country Seat.

FEW strangers visiting Baltimore and driving out Charles street avenue, which is one of the most popular drives, and few, indeed, of our own citizens, whom business or pleas-

ure has taken in that direction, but have noticed and admired, about five miles from the city, an Osage Orange hedge of most shapely form, surrounding a lawn handsomely planted, and covered by a turf of such delightful verdure that it would seem to laugh to scorn the doubters who say that under our tropical summer suns the rich green sod of England is unattainable. This attractive place is the summer residence of Mr. Wm. H. Perot, a gentleman noted in our community for his great enthusiasm and fine taste in horticultural art. A recent visit enables us to give some sketch of a few features which contribute to the effect of what is, probably, the best kept place in this vicinity.

The house, placed some distance from the entrance, is gained by an approach not meaninglessly tortuous, but of an easy and graceful curve. The road-making is simply perfection in that infrequent art, and, while wishing to keep inside the limit of unmerited enthusiasm, we must give to the turf, for emerald richness and velvet-like softness, the palm over any other we have ever seen in this country. The solidity and smoothness of the roads were attained only at the expense of thoroughness—the whole soil being removed to the depth of two feet, filled in with stone, the gravel then laid on and rolled. The charming turf was secured by thorough plowing, subsoiling and smoothing, heavy seeding, persistent hand-weeding and constant mowing and rolling. To maintain it in condition the only fertilizers used are ashes, plaster and bone dust. In the hottest seasons the grass does not lose its vivid freshness.

Twenty years ago the site of this lawn was covered with brush and scraggy trees—a wilderness. In clearimg up, the rare good judgment was displayed of preserving some of the indigenous growths, and now some well-grown Dogwoods and Cedars find themselves entirely in place amidst many of the rarest ornamental trees. The plantings have been made, we should judge, slowly and carefully, provision being made not only for present appearance, but for future effect; each tree has an individuality about it, many of them a history. On this side may be seen a Norway Maple, so fully furnished to the ground as to be almost globular in shape, on the other a Magnolia macrophylla of unusual growth and perfect symmetry; here the somewhat rare Salisburia, or Maiden Hair tree, with its peculiar fan-shaped leaves; there a well-grown Kentucky coffee tree, flanked by a native chestnut, bearing fruit of unusual size and rare sweetness; farther on another group, in which what was, perhaps, a native sapling, stands by the side of a rare tree from some foreign nursery.

Blended with the deciduous trees, forming effective groups with them, each setting off to advantage the beauties of the other class, are finely developed evergreens, both native and exotic. A favorite seems to be the White Spruce, whose glaucous leaves are beautiful in the sunlight. A well-grown Balsam Fir was noted as about in its prime, well furnished to the ground, and with none of the scragginess which this tree unfortunately acquires as it grows older. An occasional juniper finds suitable place, but not in formal rows, as too often seen.

More apart to themselves, as inviting closer inspection, are many of the rarer evergreens and deciduous trees. Among the former are to be mentioned flourishing specimens of Nordmann's Silver Fir, thought by many to be the finest evergreen in cultivation; Picea Nobilis, a truly majestic tree of gigantic stature when of age; Picea pinsapo, whose silvery foliage makes it one of the most beautiful of its class; the Deodar, most graceful of Cedars; the newer Retinosporas, destined to become general favorites from their beauty and hardiness; the Hollies, in variety; and, as an experiment, we presume, some Araucarias, which are generally considered too tender to withstand our winters. Of deciduous trees, we noted as rare a very beautiful tree, the Ash-leaved variegated Maple, and another, the Laurel-leaved Oak. In a pot, among some new acquisitions, was a Golden-leaved Chestnut; and we ought to mention a weeping variety, with variegated foliage, of the Japan Cypress. The rare things, however,

are so numerous, that to particularize would be to occupy all our available space with a catalogue-like list.

A point to which we wish to call attention as of practical moment—an object we are always glad to achieve at the same time as giving interesting descriptions—is that in all of the plantings made by Mr. Perot he has chosen from the nurseries *small trees*. The reverse is so often adopted by planters anxious for early effect, that an instance of good results soon ensuing from very small trees is worthy of being noticed as deserving imitation.

The grounds in front of the house are gently undulating, but on the rear they become suddenly broken and almost precipitous. A stream winds through the entire property, and has not only been utilized in driving a wheel to fill the capacious reservoirs, from a perennial spring, but occasionally widened out so as to afford pleasing glimpses of water from several rustic arbors and summer houses picturesquely built, and approached by winding walks. The character of the land is such, indeed, that sudden changes meet the view at every turn, and art, well concealed, has made the most of a natural site, which must at best have been unpromising.

Along the brook many native ferns have been planted, and in the congenial shade flourish and multiply. Advantage is also taken of some favoring sites to form several large plantations of hardy Rhododendrons and Azaleas—a class of plants too much neglected in this section. Of these we presume there are here planted out not less than five or six hundred, which at the time of blooming must present a gorgeous sight.

Around the dwelling and by the sides of the walks and drives are many groups of hardy shrubs and beds of tender plants. All of these, by a simple but convenient arrangement of underground cisterns and pipes, can be watered with very little labor.

The same system of water supply extends to the stables and cow houses (in the latter of which are some of the choicest of Jerseys), the greenhouses, grapery, gardener's house, etc. By a plan of grass alleys and paved gutters the steep hill sides are prevented from washing by rains, and a sod preserved on declivities such as are often found bare.

The greenhouses, two in number, neat and nicely-finished structures, are sheltered under the protection of a hill. In them, under the care of Mr. Reinicke, the gardener, is to be seen a varied collection of fine plants. Much of the material is, of course, at this season, turned out of doors, but a great many handsome things still find quarters in the houses, and look clean and thriving. We noticed a large number of Orchids lately arrived, rather crowded into close quarters, awaiting the completion of a new house which is being built to grow them and a large collection of ferns, which are favorites with Mr. Perot. The grapery, a building of some size and architectural pretensions, is near the other houses, and contains exotic vines and a few nectarines. The vegetable and fruit gardens and pear orchards are near by, with the gardener's house convenient to all.

There are, however, so many horticultural specialties that our memory, without aid from notes, brings up so many new ones that we must, for want of space, leave the subject. It is sufficient to say that there are enough objects of rare interest to occupy a lover of such things for many hours. We do not know that we can more appropriately close this article than by recommending any of our readers who may be convenient to them to see these handsome grounds, whose owner, public-spirited and imbued with the liberality common to all votaries of Horticulture, will, we are sure, give every facility for inspection by those who are fond of good examples of landscape gardening, fine trees and beautiful flowers.—*Am. Farmer.*

A REMARKABLE rose bush adorns the cottage of S. A. Randall, of Santa Rosa, California. It was planted in 1858, and is of the Lamarque variety. Imagine a bouquet of white roses twenty-five feet high, twenty-two feet across, beautifully rounded, with a blossoming surface of four hundred square feet, with four thousand full-blown roses and twenty thousand buds!

Fruit Culture.

The New Apple-tree Disease.

BY S. J. PARKER, M.D.

I CALL it *new*, not because I know it to to be so, but because among the fruit culturists in this vicinity I can find no one who is familiar with it or can explain it. It may be *old*, and only because we are so sensitive to currant-worm devastation, to potatoe-beetle injury, to the scarlet raspberry fungus, and to other late and spreading evils whose hold on the new territory resembles the plum curculio, we fear it, and dread any new foe to field or garden culture.

This newly-observed disease begins by the sudden wilting of all the leaves on the twigs of the ends of a branch. The small twigs or terminal ends, rarely over two to four inches long, they wither to-day, to-morrow begin to dry. By the third or fourth day they are brown, and show at a distance. The young apples, now the size of a cherry to that of a walnut, in a day or two more, are also dead and brown in color, among the leaves. The twigs, often with leaves in contact with the dead ones, so closely do they grow, are totally unaffected. There may be scattered over a whole apple-tree one, five, ten, of such dead twigs, with two to five dead apples among the leaves of each twig, or twigs with no apples. But oftener the disease seems to prefer one side of a tree; on some it is the east, others the north side, south or west, while the rest has no dead twigs. Oftener, perhaps, or at least more conspicuous is it, when one large limb, on any side, as to exposure or sunshine, has all the dead twigs, the rest of the tree being healthy. The disease in these twigs, to this date, of this year, has not gone beyond these short twigs, nor seem to spread from one to another. If it spread, it is by a new and sudden invasion of other and independent twigs. In no case that I have seen has it gone from one twig to that next to it.

I first observed the disease last year on a few trees. Whether connected with it or not, large limbs, affected with it last year, are dead or dying now. If their death is the ultimate effects of this disease, it threatens to be a serious evil. It is too early to say whether it affects old trees more than younger trees, but I suspect it does.

The cause of it is obscure. It certainly is not the effect of a bold sting of a large insect like a locust. Insects, quite a variety of them, are found among the dead leaves. If caused by insect, or insects, I can lay it to the charge of only two. One is a very small red spider or louse that I have repeatedly detected fast to the stem of the leaf, and bedded in the juices it causes to escape. It looks on the stem like a minute drop of red wine, which, touched with the point of a needle, causes the insect, like a spider, to move off a little. The other insect is a larger red spider, that does not cling close to the leaf-stem, but has long legs, wine-red body and legs, the legs redder than the body. This spider spins a web (and webs are seen usually in all dead twigs), and can be seen to suck the juices of the leaf-stem and leaf. When cut, the leaf and leaf-stem has the smell of the crushed spider—a foul, fermenting sort of a smell. These two insects may be but different forms of one insect. If it is the cause of the disease, it must be observed early, because as soon as the leaves are dry, it is in vain to look for this, or these spiders; for then hundreds may be examined and not a spider be found. If the spider is the cause, it should be known.

One good observer, connected with the Cornell University, thinks it may be a microscopic fungus, but says I must not say that he thinks it is, and that next season he will begin to look for it early in the season. I said to him, the sap crystallizes in the diseased leaf-stem and twigs. He replied, "I have observed that too, and have said the crystals under the microscope resemble those of sugar, in the notes I have taken of the disease." To me there is a fungus slightly apparent often on some twigs, but there is not enough of it to account for it, and in the larger number of twigs no fungus can I detect.

All I wish to say in this article is, that the

cause is very obscure; that I have no opinion of the cause; that no insect burrows or channels are to be found in any part of the twigs. That the mycellium of fungus in the leaf and the efflorescences of it in the leaf is occasionally seen, and that, if confined to twigs only, in the apple it is destructive, yet not seriously so. If it has a connection with the death a half year, year or more afterwards, of large limbs and virtually of the whole tree, it is of the greater consequence. As I said early on the Grape phylloxera, as quoted by Dr. Riley, "a cause is at work on the grape that kills the vine-cane occasionally, that no climate or season will account for," and "which needs investigation;" so I now say, I fear this is a disease to be added to the fruit pests, already so numerous.

The White Mulberry is affected with it; the Quince suffers often severely with it, the leaves and stems dying as in the Apple, and the young quinces among them also. The Pear suffers in exactly the same manner, and it needs but a glance to see that it is not pear blight.

It is also important that it be not confounded with the aphis, or apple-tree louse; this curls the leaf, which the disease does not. The aphis has the moultings in the hollows of the curled leaves, the disease does not; the disease makes the leaves deep brown color, the aphis *yellow* dead leaves. Of course the locust sting comes later in the season and can easily be seen. So of other evils and insects. Nor must the decay or rot in the apple, or whatever it may be called, be confounded with this disease. I mean that disease when a part or whole of a tree loses its vitality, ceases to grow, turns yellow in its leaves, large limbs die, and the whole tree at last. "The rot" prevailed in New England and New Jersey a few years ago. It is here now to some extent. The "apple rot," "apple blight," "branch withering," etc., is one or more diseases. *Twig blight*, or the disease I speak of, is another. Enclosed please find a twig killed by this disease, with four apples just out of bloom. The brown is yet seen on parts of the leaf, though changed to a muddy greenish brown since picked off the tree. The twig died to its junction with another twig in full vigor and life.

The Pear Dr. Jules Guyot.

[*From La Revue Horticole.*]

WHEN a seedling pear yields three successive crops of fine and good fruit, we ought to preserve it. When grafted, and its product gains in size and quality, we should propagate it. This is the case with the pear tree—Doctor Jules Guyot.

In fact, the seed from which it sprang was sown a dozen years ago by M. Earnest Baltet, and was developed in the midst of other seedlings of the same age; it surpassed them all by its vigor of growth, as well as by its early fruitfulness. Grafted at the school, on young stocks, its branches from the second year filled themselves with fruit.

Multiplied in the nursery, its subjects, although grafted *sur franc* (not seedling pear stock, I presume, but what we term double working on stocks already worked by budding or grafting), fruiting the third year, whilst its neighbors of other kinds remained unproductive except the Beurré Clairgeau and the Beurré Baltet Père.

The specimen which has served as the model to the designer of the engraving has been gathered from a young tree in the nursery. We have, then, the right to affirm, that from an older tree or from one budded on the quince, larger fruit will be obtained than we have gathered in 1873. The flesh is fine, breaking, juicy, sweet (*sucrée*), with an aroma which gives it an agreeable flavor. It ripens the second week in August. The Williams (the Bartlett of America is known, at least written of over the water, only as Williams' Bon Chretien), whose musky flavor does not please everybody, is *preceded in its maturity* by three varieties of the first order, the seducing *Favorite de Clapp*, the valorous *Docteur Jules Guyot*, the succulence of *l'Assomption*, *each* indispensable in a plantation d'Elite.

The pear Dr. Jules Guyot is of a good size, pyriform or calebass form, sometimes acute,

sometimes obtuse towards the stem end, often flattened toward the blossom end; its color at first is sea green (vert de mer), passes to a citron yellow, sometimes watered with rose, but it is susceptible of remaining yellow until mature, lightly herbaceous.

According to our observations, the pear *Docteur Jules Guyot* unites the necessary qualities for admission into either garden or orchard, among fruits proper for market or family use. The vigor and fertility of the tree leaves nothing to desire.

The establishment Baltet Freres à Troyes has dedicated it to our eminent viticulturist, Doctor Jules Guyot, né à Gyé sur Seine (Aube). CHARLES BALTET,

Horticulturist at Troyes.

NOTE.—The points which impressed the translator in the above notice of this pear are as follows:

First, its size; the plate, if a correct representation, shows it to equal the Duchesse, and surpass our largest Bartlett from young trees; its color is good, and its skin, from appearance, will bear shipping well, and, although not so knobby as the Bartlett, its sides are not so regularly smooth as fine specimens of Beurre Clairgeau.

Second, The time of ripening would materially increase its market value over the Bartlett.

Third, Its early fruitfulness on its own roots, and a vigorous grower, adapting it well to orchard culture.

A California Ranch.

NEAR Chico, Cal., about ninety-five miles from Sacramento, is the ranch of Gen. John Bidwell, of which Rev. John Woods gives the following account in the *Interior:*

The ranch contains a little more than 21,000 acres. Sixty miles of substantial post-and-board fencing inclose the tract and separate its different fields. There are several miles in addition of neat paling fence surrounding the mansion, park and gardens. There are in grain this season 5,390 acres. Last season the wheat product of the ranch was 96,000 bushels. It is not considered a grain ranch, however, and there are many farms in the State that far exceed it in that respect. There's a man down at Vallejo, in Napa Valley, who has one field of 35,000 acres in wheat this year. But the beauty of Rancho Chico is the variety of its productions. About 500 acres are in vines, nearly all choice foreign varieties, such as the Rose of Peru, and the White Muscat of Alexandria. The product of the vineyards last season was 12,000 pounds of raisins, and from the inferior and refuse grapes 25,000 gallons of vinegar were manufactured. No wine nor spirits are made from the vineyards of Rancho Chico. The whole process of drying, curing and packing the grapes is conducted on the ranch. Almonds seem to do admirably here, and the almond orchards are a prominent feature of the farm. There are about fifty acres in bearing almond trees, and some 180 acres that have not yet come into bearing. Of plum trees there are fifty acres, and of peaches about the same.

The inclosure in which the family residence stands consists of 340 acres, a portion of which is laid out in flowers, lawns, ornamental shrubbery, walks, drives, etc.; and the rest in gardens and orchards. Here are collected a great variety of fruits, many of them semi-tropical, oranges, cherries, apples, pears, apricots, nectarines, pomegranates, figs, pecans and English walnuts.

The nursery contains some 30,000 trees of all varieties, fruit and ornamental. Of stock there are on the ranch, this spring, about 5,000 sheep, 1,300 head of cattle, 300 horses, and 400 head of hogs. They are milking in the dairy, at present, over 100 cows, and besides the milk distributed to families, make an average of forty-five pounds of butter per day. During the past winter there have been 13,000 cords of wood cut on the ranch.

Fruits in Valleys.

THE importance of atmospheric drainage, or in other words, the point of movement of currents of air, is thus discussed by President Parmelee, of Old Mission, Mich. He says:

"I have long held and preached that hollows, from greater cold, are utterly impracticable as sites for orcharding. People will have it that the different temperatures at different points was owing to the difference in thermometers, and a council of instruments was called at the Farmer's Club, at which were present about ten thermometers, and the trial showed an almost perfect agreement. Mr. Brinkman brought his up to my residence one still, cold evening, and with mine was hung on a twig near the house. After ample time to settle, we hung them in my cherry orchard, lower ground, and they went down 9 deg. We then carried them about a stone's throw west to the top of a ridge, and they came up 8 deg., and the difference of altitude was only about eleven feet. We then took them down on to the little lake between my house and the dock, and they sunk 23 deg. On my return home my thermometer came back to starting point. Since these experiments several neighbors have found as striking differences on their own farms."

I suppose the lesson is to keep orchards out of the hollows, even at high altitudes. Hollows, even if on the top of mountains, will catch the cold air.

The Old White Rose.

AT my native home in Hillsboro', N. H., there stood at the east corner of the house a large White Rose bush, so large, so double, so white, with a light shade of delicate pink when first open to the light, so sweet that my memory will never forget it. When I planted a garden of my own in Iowa, I found the "*old White Rose*" in a Scotch lady's garden, and I got off a few shoots with roots, and have ever since had the same variety, the big white rose bush.

The cane is very large and tall. I went by the side of one of mine to-day, and it is about eight feet high, of a bluish green color, with large, strong spines. I consider this the best of all the June roses. Why is it not in the nurseries? Is it because it is out of fashion?

This old White Rose, the Damask, and the little Burgundy should not go out of fashion while their fragrance meets the nose or their beauty meets the eye.

Mr. Editor, I move that these three roses be placed on the list for general cultivation, and that no nurseryman's catalogue be considered complete until they are in it.

SUEL FOSTER.

Smoke-clouds in Vineyards.

IT is a common practice to protect the vineyards of France and Germany against frost by the production of artificial clouds of smoke. A new method in this operation has been recommended by M. G. Vinard. This consists in mixing gas-tar with sawdust and old straw, and piling the material in large heaps in the vineyards. Despite of rain and moisture, the mixture preserves its inflammability for more than a fortnight. When required for use, the heaps are divided into smaller ones, and distributed in and about the vineyard. If the wind be high, which it is in cases of frost, the heaps burn freely for about three and a half hours, producing a very dense smoke. The artificial cloud which thus envelops the vines considerably decreases the radiation from the ground, and thereby counteracts frost, which is greatest towards morning during calm spring nights, and does so much injury to the tender plants.

Mr. HENRY SHAW, proprietor of the celebrated garden at St. Louis which bears his name, favors *The Prairie Farmer* with his recipe for the wash alluded to some time since in *The Tribune* for protecting trees from the Flat-headed Borer: "To a barrel of water put ten pounds whale or fish-oil soap and five pounds Paris green." Applied during the summer months to ash and other young trees with smooth bark in the recently-planted Tower Grove Park, it prevented the entrance of the insects, which had previously done much harm.

Editor's Portfolio.

American Pomological Society.

The biennial meeting of the American Pomological Society was held in Chicago the first week of September, and was the occasion of a large reunion of horticulturists from all parts of the East. About 150 delegates were present, and the usual exercises of addresses, discussions on the merits of native fruits, were passed through with. President Wilder's address is in his best vein, and a grand contribution it is to the records of American rural literature. Many essays were submitted, yet but few were read, the principal ones being by P. P. Bishop, on "Orange Culture in Florida;" it was very valuable and interesting. Thomas Meehan treated fully on "Fungi," and C. V. Riley spoke on "Insects, Worms and Grasshoppers." The exhibition of fruits was large, but very scattered, and often troublesome to find, this being due to the peculiarities of the building, and the display was less imposing than any time in many years, but there were curious features which gave singular interest to it all. It will be remembered that the display of fruit at Richmond was particularly fine in apples, at St. Louis in grapes, at Boston in pears; but in Chicago there were extensive collections of tropical and semi-tropical fruits, all grown on the coast of the Gulf of Mexico.

Mr. D. Redmond, of Mississippi, had a splendid display of oranges, many varieties, several kinds of lemons, also bananas, pine apples, custard apples, figs, pomegranates, jujubes, Chinese quince, olives and dates; and with these, grown on the same grounds, were two varieties of apples, four kinds of pears, including Bartletts and Beurre Deils, of superior quality.

Close at hand were fruits from Minnesota, and ripe pears from Massachusetts and New York.

The display of apples was less fair and perfect than in preceding years; yet with the lignt crops of Illinois and the West, it was impossible to expect a great display. There were some very fine collections of plums, and none more handsome were ever shown than those from the Grand Traverse Bay.

The total display of fruits, however, was nearly 7,000 plates of blackberries, shown from Michigan; there were some specimens of unusual size, measuring fully four and a quarter inches round. From Wisconsin the principal display was in crab-apples, there being over fifty sorts Siberian crabs; a curious fact was learned from the Wisconsin fruit growers, that fruits grown along the lake shore were fully four weeks later than those grown in the Mississippi valley, even at points farther north.

The display of collections from other points was as follows: From President Wilder, 270 varieties; Hovey & Co., 115 varieties; F. & L. Clapp had a fine collection of seedlings; also, fruit from Robert Manning and J. W. Manning; pears from John Saul, of Washington, were very large; Ellwanger and Barry showed 250 varieties of pears, and fifty-seven varieties of plums; E. Moody and Sons also had large display of pears, apples and plums; and the finest amateur display was that of J. H. Ricketts, of Newburgh, N. Y., whose collection of hybrid grapes, really the finest and most choice ever seen in the United States, attracted special attention.

Medals were awarded as follows:

First Silver Wilder Medal to Michigan Horticultural Society.

Second Silver Wilder Medal to Iowa State Horticultural Society.

Third Silver Wilder Medal to Wisconsin State Horticultural Society.

Fourth Wilder Medal to Nebraska State Horticultural Society.

Silver Medals, also, to Ellwanger and Barry, E. Moody & Sons, John Saul, J. H. Ricketts, Newburgh, N. Y., for a large collection of seedling grapes of great promise; Isador Bush & Son and Mussner, of Bushberry, Mo., for a collection of native grapes; D. Redmond, Ocean Springs, Miss., for an interesting collection of semi-tropical fruits, including oranges, lemons, pomegranates, bananas, figs, pine apples, etc.; Edward Daniels,

Gunston Hall, Va., for pears and grapes; A. Fahnestock, Toledo, O., for pears; B. G. Smith, Cambridge, Mass., for pears; F. and L. Clapp, Dorchester, Mass., for seedling pears and a fine dish of "Clapp's Favorite;" J. W. Manning, Reading, Mass., for pears; Hovey & Son, Cambridge, Mass., for pears; S. E. Chamberlain, Waterford, Va., apples; B. S. Fox, San Jose, Cal., for seedling pears.

Honorable mention is made of George Balderstone, Colora, Md., for pears; Dr. Humpheries, Galesburg, Ill., for apples; Hellman, Froth and others, of Fairfax county, Va., for general collection; Warsaw (Ill.) Horticultural Society, for apples; G. H. Baker, South Pass, Ill., for apples; Adams (Ill.) Horticultural Society, for general collection; Sedalia (Mo.) Horticultural Society, for general collection of fruit; Wisconsin State Horticultural Society, for general collection, including an interesting contribution from S. P. Pieffer, of Pewaukee; Cambridge (Mass.) Society, for pears; Robert Manning, Salem, Mass., for specimens of pears from historical trees collected by him including the Endicott, planted about 1630; an orange pear tree 285 years old; a Warder, grafted April 19, 1775, and a tree planted by Anthony Thacher, in 1640; B. F. Trunson, Humboldt, Tenn., for general collection.

Acknowledgment of thanks for special services, with award of Medal to President Wilder, Thos. P. James and J. J. Thomas.

Due thanks were made in the President's address to the editor of THE HORTICULTURIST for prolonged labor and courtesies in editing the last volume of the Transactions of the Society.

After a ride through the park and boulevards, with the banquet at the Grand Pacific Hotel, the members returned to their homes.

The too recent return of the editor of this journal from a summer tour to California and the Pacific Coast, must be the occasion of our apology, for inability to attend the exercises, and present more full report.

Dicksonia Antartica as a Basket Plant.

It may not be very generally known, says a correspondent of the Gardener's Magazine, that Dicksonia antartica, one of the most robust of tree ferns, is well adapted for suspended baskets; and a brief announcement of the fact will possibly not be without interest. To those who have not seen it grown in baskets it may appear altogether unfitted for these receptacles, and any assertion to the contrary may by some readers be received with doubt. Of course, large plants with stems are not suitable for this style of culture, as they would not only be wanting in elegance, but they would have an appearance bordering on the ridiculous. The size of the plant is not of so much importance as its being quite stemless; in fact, rather large plants are preferable to those of small size, as the fronds droop over the baskets and have a more effective appearance. One of the baskets suspended along the nave of the Crystal Palace, Sydenham, is occupied with a medium-sized plant of this fern, and it is quite fair to say that it is the most elegant basket in the building. The fern is evidently in a thrifty state, for it has produced fronds from three to four feet in length, which hang over the sides of the basket and nearly hide the wirework. Whether the fronds are drawn down with a little bass I cannot say; but this is a matter of no consequence, for they have a most natural as well as an elegant appearance. It has been in the basket it now occupies for some years past, and was evidently put into it when small. The basket, it may be said for the information of visitors to the Palace, is suspended on the right-hand side of the nave going towards the tropical end, and just beyond the opera theatre.

Tulip Tree.

An admirer of the Tulip Tree speaks of it in the following strain: In habit of growth it closely resembles the common maple, but its conspicuous orange-tinted blossoms and scaly fruits at once suggest its near affinity to magnolias, to which class it belongs. The flowers are not unlike those of a tulip, and hence the name by which it is most generally known. The broadly expanded leaves, instead of being palmate as in the plane, are irregularly four-lobed, and somewhat resemble a saddle in conformation; and it is sometimes

called the "saddle tree" from this peculiarity. The flowers are profusely borne during the summer months, and although not strikingly ornamental on the tree on account of their being somewhat hidden amid the ample foliage, when cut and arranged in a vase with the foliage which naturally belongs to them, they have a distinct and striking appearance. This tree is from 100 to 150 feet in height, but in Europe it rarely exceeds 70 or 80 feet. All through the summer the foliage is of a fresh pale green, and in the autumn it dies off a brilliant golden yellow. Striking effects might, therefore, be obtained by grouping it with *quercus coccinea*, or the purple-leaved peach. In addition to its ornamental properties it is valuable as a timber tree, the wood being firm in texture and capable of taking a fine polish.

Carnivora.

At a meeting of the Edinburgh Botanical Society, a short time since, Dr. Balfour read notes of experiments he had been making on Dionœa muscipula and allied plants. These experiments painfully confirmed the suspicions entertained by Ellis, Curtis, Hooker and Darwin, that the dionœa is a carnivorous and, it may be added, a most brutal plant. Dr. Balfour classified the facts he had observed in regard to it under the heads of irritability, contraction, secretion, digestion and absorption. The irritability, it seems, is resident in six delicate hairs, so placed on the surface of the leaf that no insect can avoid touching them in crawling over. Dr. Balfour touched with a needle every other part of the leaf and no response followed; but no sooner was the point applied to one of these hairs than a contraction of the leaf ensued. Chloroform dropped on a hair caused the leaf to close like a winking eye, but water had no such effect. It was only when the object seized was capable of affording nutrition that the contraction continued for any considerable time. A piece of wood was soon released, and so was a dry fly; but when a live fly or caterpillar or spider was enclosed, the contraction lasted on an average for about three weeks. The leaf at the same time gave out a viscous acid secretion. This appeared to be only the case when an insect was captured, and it was always present on such occasions; but whereas with a fat spider it was abundant, with a shriveled fly there was but little. The notion that any nourishment was obtained from insects so enclosed has been controverted; but Dr. Balfour pointed significantly to the facts that young plants of dionœa under bell-glasses had been found not to thrive so well as those left free, and that while a piece of beef wrapped in another leaf became putrid, a piece enclosed by the dionœa remained perfectly inodorous, but soon lost its red color, and was gradually disintegrated more and more until it was reduced to pulp. This statement, showing the greediness and ferocity of the dionœa, created quite a painful sensation among the members of the Botanical Society, and the chairman, while recommending a continuance of the experiments, wisely suggested that they should be completed before the anti-vivisection act comes into operation, since otherwise Dr. Balfour may get into trouble.—*Pall Mall Gazette.*

Roses for Winter Blooming.

In growing roses for the window the plants should be procured in spring; they should be of small size, and, as a matter of course, should be perfectly healthy at the start. We thus obtain a cheaper and really better foundation for future operations than when a large plant in full bloom is procured. The soil is an important item, and should be composed of thoroughly decayed sods and surface soil (not, however, from a garden), well enriched with good old rotted manure, mixing therewith a little sharp sand. The little plants should be potted into a size larger pot than the one in which it had been previously grown. Place it in a warm, sunny window, soak it thoroughly at first with water, and protect it from the strong light with paper until the leaves no longer wilt. As soon as the weather is sufficiently mild plunge the pots up to the rim in a cold frame, whitewash the glass, and attend to the ventilation and watering every day, regulating the same by the state of the weather. Once a week give them a *weak*

solution of manure water, and occasionally turn them out of the pots to examine the state of the roots; if they are white and growing no fear need be entertained about the tops being green and flourishing. As soon as there is an abundance of fibers around the outside of the ball of soil, the plant may be shifted into a size larger pot; but always bear in mind that one inch larger in diameter will always be sufficient, as plants are not infrequently injured by giving them too large a size. In watering always sprinkle the foliage well, it refreshes and invigorates it wonderfully. Some growers often mulch the surface of the pots with a little tan-bark, or, what is better, rotted manure (never use it fresh from the stables); this tends to keep the soil moist and cool in hot weather. As the excessively hot weather approaches the frame should be made to slope to the north, and during the middle of the day the sash should be raised up at an angle of 45° and fastened with a short prop, but as the sun declines it must be lowered, and closed entirely at sunset. Insects, of course, will annoy the novice, as they do the old gardener, but the green-fly is easily killed with a slight fumigation of tobacco smoke, care being taken not to burn the foliage by allowing it to blaze, and mildew may be driven off by dusting the foliage with flour of sulphur. Earth-worms in the soil are sometimes very annoying; to obviate this plague the pots should be sunk in coal ashes. If at any time a plant should look sickly and cease to grow, the best plan is to head it back, curtail the roots, and give it a smaller pot with fresh soil. By autumn we thus have usually a strong, healthy plant for our winter enjoyment, and it will be a never-failing source of pleasure if kept in perfect health. In selecting varieties by all means choose the Tea Roses; they are much better adapted for pot culture than any other class, are usually very profuse bloomers, exceedingly fragrant, delicate in color and compact in growth. A truism in rose growing is, that those who really love flowers always have good luck, for the fact is such always tend them well.—*A Rose Grower in N. Y. Tribune.*

New Tea Rose Catherine Mermet.

In a recent election of roses, Catherine Mermet—a beautifully-colored illustration of which is given in the current issue of the *Florist and Pomologist*—was placed by a large majority of electors amongst the best twelve roses known; and that it is one of the very finest varieties we have there can be no sort of doubt. Probably, says the *Florist*, if all the good qualities it possesses are taken into consideration, it will be acknowledged to be the best of all the Teas. It is large, of the finest form, constant and floriferous. As a pot plant it is a good, healthy grower, and makes sufficiently strong though not large wood. Probably it would be a much more robust grower in the open air, budded on the briar, which suits most Teas better than any other stock. Though the blooms vary more or less in depth of color, the prevailing tint is flesh-colored rose, with a dash of yellowish buff, but this tint is not generally so deep as it appears in the illustration. On the whole, Catherine Mermet is, as the catalogues say, a "superb" rose, and ought to be in the most choice collection.

New Camellias.

The Jardin d'Hiver is one of those newer continental kinds that are not as yet common in gardens, but it is one that is highly commendable on account of its compact, pyramidal habit. It is free-flowering, and produces fine, large, imbricated dark rose flowers. It has a habit quite distinct from all other kinds I am acquainted with, and any one adding it to their collection of Camellias will, I am sure, be pleased with it. I think it is one of M. Ambroise Verchaffelt's raising or sending out, as he sent it me amongst a large collection I commenced forming here a few years ago. General Cialdini is another beautiful imbricated flower, of perfect form, and a highly commendable kind of a bright carmine color. It bears cutting and buds freely. Matteo Malfin is also a lovely variety; in color it is cerise, with a white mark down the petal. This is really a most beautifully chaste flower, of perfect form, and no collection should be without it.—*Chevalier, in the "Garden."*

Superior Peaches.

We venture the assertion that the recent Fruit Growers' fair in New Orleans had nothing superior to some peaches which were last Saturday presented to us by Mr. David Riggs. Taking two of the largest, one weighed nearly and the other over nine ounces, and they were ten inches in circumference and almost four inches in diameter. Such mammoth peaches were never before grown in this country. They were of the cling variety, but as sweet and juicy as any peach we ever ate. This should encourage others in peach culture, for he has fully demonstrated that as fine peaches can be grown here as in any country. Four years ago he located on the prairie, and now he has several hundred peach trees in full bearing, some of which are of choice grafted varieties, and he intends hereafter to cultivate only the best. We hope others will follow his example.—*Louisiana Sugar Bowl.*

Notes on Geraniums.

In a corner of my little botanical garden I planted a circle with Zonale Geraniums, one of a kind of the most promising varieties, merely to test their respective worth. They are now blooming, and I find I have far too many kinds. Among the scarlets none surpass the old Gen. Grant for profuseness of bloom; it is a poor flower and an open truss, but the color is brilliant. Lucius is grand, but of a lighter shade than the above. Jean Sisley is very fine, as every one knows who cares anything for flowers, its pure white eye making it very conspicuous. Among pinks Master Christine must take precedence for profuseness of bloom and decided color. The new White Clipper is a wonderful bloomer, endures the sun well, and is the first really good white that I have yet tested. Among doubles I like the Gloire de Nancy as well as any other, although none of them yield so many nor as fine trusses as the single varieties. The new Jewel is a dwarf, compact grower, with small trusses of extremely double flowers, deep crimson in color; it promises well for the border. In the variegated-leaved kinds I am not aware of anything to surpass that sterling bronze geranium, Gloire de Corbenay, a variety that stands the sun with perfect impunity. For ribbon gardening, or for massing, it can have no superior, in this locality at least. I had almost forgotten the very beautiful Asa Gray, with its exceedingly conspicuous salmon-orange double flowers. It has been one continuous sheet of bloom the entire season, and is abundantly distinct from anything else.—*N. Y. Tribune.*

To Destroy Moles.

Bryan Tyson, of Washington City, gives the following method for making pills to destroy moles: In early spring, about the time the moles begin to come forth from their winter quarters, make a stiff dough of corn meal, mixing with it a small quantity of arsenic. Make a hole with a finger in the runways, drop in a lump of the dough about the size of a marble, and then cover over with a lump of earth to exclude the light. After the first rain go over the field again and deposit in all freshly-made roads. I once concluded to plant a piece of sandy bottom land in sweet potatoes, but, as it was much infested by moles, my success depended on first exterminating them. A few doses of arsenic given in the way described brought about the desired result, and it was a very rare circumstance to see the track of a mole in this piece of ground during the entire summer.

Wire-Worms.

These are found in the greatest quantities in fresh, new loam, just brought from the fields, and such soil, when used for valuable plants, should be carefully examined, and the wire-worms crushed; their brownish red bodies are easily seen. Mr. Tillary writes to the *Garden* that slices of potatoes or lettuce stems will likewise entice them where they are numerous. The slices should be placed under ground, and then frequently examined. He saved a bed of seedling Gladioluses that were planted in some new loam, which he found afterwards swarmed with wire-worms, by placing slices of potatoes and lettuce stalks in the ground after he found that some of the plants were flagging.

International Horticultural Exhibitions.

The committee for regulating national and international horticultural exhibitions proposes to hold a grand international horticultural exhibition and congress in the Palace of Industry, Amsterdam, in 1876, and has issued a bulletin on the subject.

The last exhibition of this character took place at Amsterdam in 1865, and after so long an interval it is believed that a second display can be made which will be very interesting and attractive. It is proposed that the articles to be exhibited shall be confined to a definite number, as, possibly, to cotton, madder, indigo, gutta-percha, India rubber, ethereal oils, fatty oils and fats, materials for paper manufacture, Dutch cereals, tobacco and Peruvian bark, possibly with the addition of a few minor objects, such as vegetable wax, cachou, sarsaparilla, resins, copal, vanilla, grass plaiting, etc. The precise date of the congress has not yet been fixed, but will be announced hereafter.

Peter Henderson's Greenhouses.

A visitor to Mr. Henderson's grounds will be astonished to find the immense extent of his flower trade. He has six or eight acres all used for flower beds—worth $10,000 per acre alone for building lots. Nearly one-third as much more is under glass. He employs over fifty hands, and has sold as high as 300,000 Verbenas in one season. Such is the way a floral prince manages.

Remedy for Coddling Moth.

At a meeting reported in the *Prairie Farmer*, of Alton, Illinois, Dr. Hull said his lime remedy for coddling moth had always proved effectual. The lime is thrown into the trees when the dew is on, or just after a rain when the fruit is set. A dipper or large spoon may be used, or, best of all, a bellows made for the purpose. The insects will not go where the lime is scattered; they go away.

Hyacinths in Winter.

Why is it that, as a general thing, persons are so unsuccessful in blooming bulbs in the winter? In nine cases out of ten the bulbs do not give the satisfaction they should. We think the mistake is that they are forced into growth too suddenly.

A lady buys, say, half a dozen choice bulbs. She does not care, particularly, to have a succession of bloom. If they flower moderately well she will be perfectly satisfied. They are planted according to directions, and set away in the dark for six weeks. At the end of that time you may find them in the sun, at the sitting-room window. In a day or two the points of green leaves seen near the surface will open with a little compact bunch of color in the centre, and there it will stay until it withers,

Perhaps out of the six bulbs three will throw up spikes of bloom. These will probably prove of the white or lavender varieties, which seem to be of freer habits than others. Last winter we succeeded in growing as fine blooms of hyacinths as we have ever seen, and with very little trouble. Late in December, after our fall stock of bulbs was disposed of, we found a dozen or more hyacinths of various colors had been overlooked. To keep them from spoiling they were hastily planted in four or five large pots, and these set away in an out-building, where they would be free from frost and have very little light. There they were left for three months, and nothing done except to water them occasionally. Expecting little or nothing from them, they were not noticed until leaf and flower stalk were both perfectly developed. The light had not been sufficient to color the flowers, and these were all of a dirty pale green. The pots were now brought to the sitting-room and placed in the full sunshine, and in a few hours each spike had assumed its natural tint. The effect was very beautiful. Not a bulb had failed—red, purple, yellow, blush and white, were all large and perfect.—*Am. Garden.*

A Good Tea Rose for Market Purposes.

I was told the other day, says a correspondent of the *Garden*, that from one dark, apricot-colored Tea Rose, Madame Falcot, worked on a standard briar stock, out of doors, roses had been cut every year, to the value of between 30s. or 40s. a year. It is evident, therefore, that this is a useful rose for furnishing cut bloom for market.

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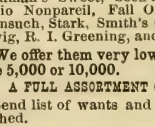
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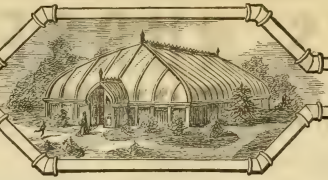
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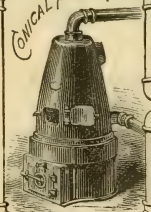


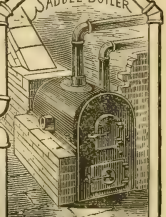
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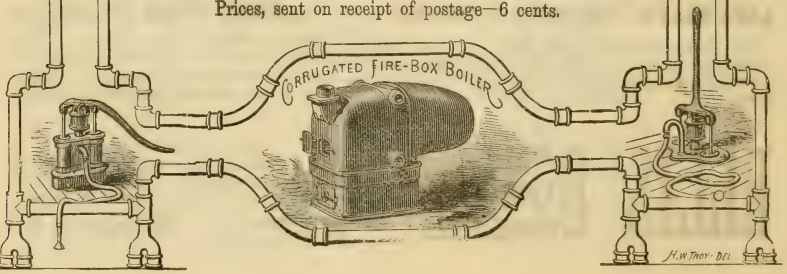
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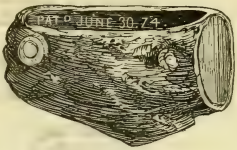
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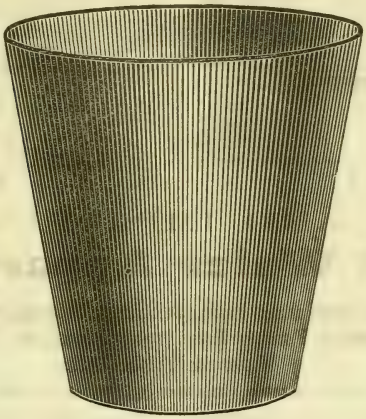


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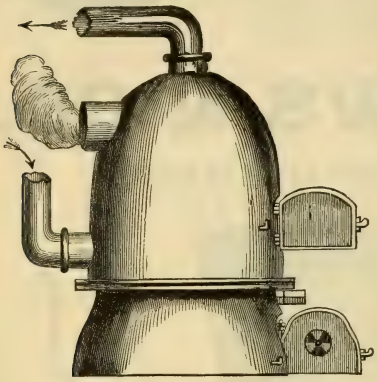


Fig. 1

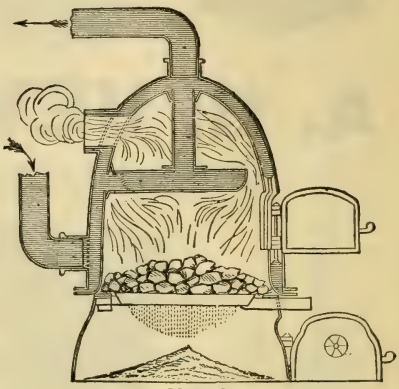


Fig. 2.

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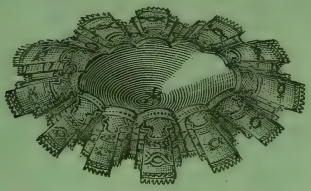
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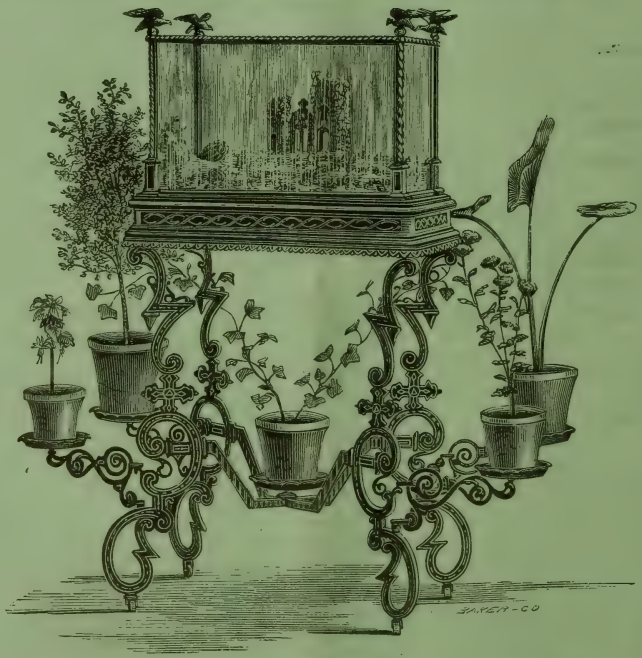
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JOSIAH HOOPES. ANDREW S. FULLER, JAMES TAPLIN.

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VOL. 30. NOVEMBER, 1875. NO. 353.

Special Contributions.

International Fruit & Flower Show at Edinburgh.

BY J. GREIVES.

THE International Fruit and Flower Show at Edinburgh this year was such an excellent one, that a synopsis of it must be of interest to your readers. It could scarcely be called an international show, however, although competition was open to gardeners, etc., from all parts of the world, valuable prizes and liberal awards being set apart for the exhibits of Guernsy and Jersey, France and Italy, Austria and Germany, the Netherlands, Denmark, Norway and Sweden, the United States, British North America, and Turkey and Egypt. None of these countries put in an appearance, with the exception of Sweden, which sent a fine collection of grapes, peaches, apples, plums, etc., which were awarded a first premium. But the $3,500 gold offered as premiums undoubtedly called forth the best efforts and skill of many of the best British cultivators, especially as this large amount was considerably augmented by the trustees of the Veitch Memorial Fund awarding a medal and premiums of not less than $25 gold for the most meritorious dishes of white and black grapes, the most meritorious specimen orchid in flower exhibited (which was a plant of the old but rare *Renanthera coccinea*, bearing a finely branched spike of orange-crimson flowers); the most meritorious specimens of greenhouse and stove plants in flower exhibited (the former being *Erica Marnockiana*, a fine specimen, beautifully bloomed, bearing dark crimson flowers—a plant of very fine appearance; the latter being an *Allamanda Hendersonii*. This was also a picture of a plant in grand condition, with beautiful yellow flowers covering it). These, besides numerous special prizes and silver cups of considerable value offered by private gentlemen, brought together a large number of competitors. A tournament of such importance was not to be lightly entered. Professionals and amateurs put forward their best efforts to maintain their claims to pre-eminence; consequently indifferent productions were nowhere to be met. As each exhibitor made a creditable showing, although

not succeeding in securing first-class honors, consequently the show was rendered a fine collection of very superior and meritorious fruits and plants, there being none below the line of mediocrity. Although the number of entries was 1,350, it would have been difficult to pick out an exhibit which was not above average merit. I am a believer in good premiums making good shows, and here I found it exemplified to the fullest extent. Unfortunately, the building was entirely inadequate to properly stage and arrange such a large number of plants to the best advantage, they requiring at least double the room to do them justice. Under these circumstances, Mr. Dunn, manager of the Palace Gardens at Dalkeith, who had entire charge of the staging, had a trying ordeal, and performed the difficult task with consummate ability, the general effect produced being charming, while the elegant grouping was striking and artistic, both in detail and general arrangement. How so much was possibly accomplished in one night, was to me surprising. At 6 A. M. the judges passed in and made their examinations and awards, which occupied until 9 A. M. At this hour the hall was opened for professional gardeners (not members of the society), who were allowed two hours to make their examinations, comparisons and comments. It may show what an interest the profession in the United Kingdom took in their great show if I add that they formed a brigade of 1,600 gardeners, the entrance fee to them being reduced to one shilling (25 cents) per head. They left the building at eleven o'clock, and the general public was then admitted; and during the two days, about 17,000 people visited the exhibition, and reimbursed the society over $2,500 by their entrance fees.

The exhibition was divided into two main divisions—one for fruit, and the other for flowers, the chief interest of the show being centred in the former, especially the grapes. Some monster bunches or clusters attracted the most attention, and well they might, as they had never been paralleled, the largest bunch weighing 26¼ pounds, of the variety *Raisin de Calabre*, the next bunch being only five ounces behind it, viz. 25 pounds and 15 ounces, this being also a white grape, but of the Syrian variety known as White Nice. These extraordinary examples of what skillful cultivation may produce are simply wonderful. The latter bunch looked as though it might easily have weighed a few pounds more, had it been less severely pruned, although the effect of this was quite discernible in the difference of the size of the berries. On the other hand, the former bunch was only *one* of *four* grown on the same cane, which was about 14 feet long, the largest bunch of the remaining three weighing no less than 18 pounds, and the other two about six pounds each. So much for the "big" grapes of Scotland. There were many fine bunches of Barbarossa, Black Hamburgh, Muscat of Alexandria, Duke of Buccleuch, Lady Downes, and others too numerous even to mention here, weighing from 12½ pounds down to four pounds, as to varieties. The aggregate weight of the grapes exhibited was over 2,000 pounds.

Peaches, Nectarines and Apricots were well represented by about 100 dishes, in many cases exceedingly fine. The best dish of peaches came from Ireland, and were really magnificent specimens of this fruit, being four inches in diameter, and most beautifully colored. Variety *Noblesse*.

Plums were to be found here also in large quantity, some of them the largest and best colored I have ever seen, or expect to see.

Apples and Pears.—These fruits were well represented in all classes, but more especially the *culinary apples*, which were generally of far superior quality to the dessert kinds. Pears were also well represented by good collections, and some exceedingly fine single dishes. In this collection were six dishes of very fine pears from Gothenberg, Sweden, each fruit named and neatly labeled.

Small Fruits, Cherries, Currants and Gooseberries.—This was a most surprising assortment of fruit, as the currants were almost as big as gooseberries, and the gooseberries looked like plums, and the cherries—well, I can only say they were surprisingly beautiful and tempting, especially the bright red *Belle Agathe* variety. Over fifty dishes of the above

fruits were represented, and *all* were *far above* the average quality. There was also a large assortment of miscellaneous fruit, such as pine-apples, bananas, oranges, guavas, melons, etc. But I must dismiss the subject of fruits, as it would be impossible in anything like ordinary compass to specify the merits of the piles of fruit that occupied the benches. Only unqualified praise can be given to the collections mentioned above, which were beautiful to look at, and no doubt of exquisite flavor, judging from appearances and some of the varieties I tasted at the close of the show.

On passing from the fruit to the floral hall, we find a nice collection of rare shrubs, mostly variegated and hardy, from Japan, among which we noted *Retinispora tetragona aurea*, *Juniperus japonica aurea variegata*, *Taxus canadensis aurea*, and many other very pleasing, but rather expensive varieties. As we enter the hall, the first objects we see are two beautifully decorated dinner tables. As this part may interest the ladies, I will give a few details in regard to them. These tables were 10 feet long by 4¾ wide, both of them laid out for a dessert service, arranged for twelve persons, to show the best means for utilizing fruit and flowers in table adornment. Table number one proved one of the great attractions of the show; but most of the effect being due to the rich china and brilliantly beautiful collection of glass ware, I will confine myself chiefly to describing the latter. There were five principal pieces of glass. The centre-piece was a very attractive epergne-looking vase; on each side of this were placed two small side-pieces, which were of the clearest cut glass, of a very light and graceful pattern. These pieces all rested on elongated oval mirrored stands. Between the side-pieces and centre-pieces were placed elegant square-shaped rustic orchid or fern-baskets of clear cut glass, which contained square mirror-glass pots, instead of the round ornamental flower-pots usually seen. Between each two plates were small, graceful glass vases or flower-stands set in shallow square bases, which, being filled with small blooms, formed a bed of flowers. This bed was again surrounded by another star-like bed, this latter being formed by six wedge-shaped pieces of glass, forming shallow dishes, which contained blooms of pansies, geraniums, etc., which entirely hid the glass; and these formed the unique little flower-beds when the wide ends were pushed up close to the square base, wherein the small vases rested. This very simple arrangement proved very effective, giving great scope for the blending of colors, contrasting of shades, etc. Another observable feature was a china card at each plate, in the shape of geranium leaves, in bright, bronzed, natural-looking colors, with the supposed name of each guest written or printed thereon, which, I was informed, could be washed off at pleasure, and others substituted. These mirrored pots and stands, reflecting and re-reflecting the numerous colors of the flowers, and seemingly multiplying the menu brackets of Sevres china vases, etc., produced a varied, rich and brilliant effect; but the ferns and grasses used as plants were too light in habit, and the fruit rather sparingly used. Table number two was rather meagerly furnished in comparison, but the taste displayed in its arrangement was a credit to the exhibitor, as the collection of decorative plants and arrangement of the fruit was very fine; but the lack of small menu detracted very materially from its otherwise very fine effect. The awards were made by lady judges, they awarding number one $30 in gold, and the second $20; and they undoubtedly were the best judges. As we leave these tables, which were under the gallery, we get a full view of the hall, and the scene that meets the eye is very striking and imposing. It is seemingly converted into a vast, variegated, flowery tropical forest, composed of feathery palm trees, gigantic tree ferns, large Todeas and heaths, with orchids and Liliums, etc., in full bloom, interspersed amongst them, forming a magnificently rich scene. As we pass along, we are surprised at the large number of huge plants of Adiantums and Todeas, both varieties counting by the dozen, while several of the former were six feet in diameter, and many of them four feet, the exceptions being those under this figure. There were also

some very remarkable specimens of Todeas, they even nearly reaching six feet, many of the fronds being two, and several nearly three feet long. The varieties of the latter were chiefly *superba* and *intermedia*, the principal varieties of the former being *Farleyense*, *cuneatum*, *capillus-veneris*, var. *magnificum*, *cardiochlæna*, *gracillimum*, etc. The contrast in appearance between the first and last named, in such large plants, is very remarkable. A fine specimen of *Adiantum princeps* received a special first prize. I also noted amongst the ferns a fine specimen of *Leucostegia immersa*, a very beautiful, fresh-looking fern.

Amongst the greenhouse plants we noted an excellent specimen of the blue-flowered *Statice profusa* in fine flower; a *Vallota purpurea*, with fifteen fine spikes; an orchid *Aërides suavissimum*, with three good drooping spikes of fragrant waxy flowers; and a splendid pot of *Lilium auratum*, containing eight spikes, bearing upwards of one hundred fine blooms; and a fine, profusely flowered plant of *Dipladenia Brearleyana*, in B. S. Williams' collection. In the same collection we noted a well grown plant of *Nepenthes Sedeni*, bearing eighteen highly colored pitchers; also a beautiful *Bertolonia Van Houttei*, *Maranta Makoyana;* an *Oncidium tigrinum* in bloom, bearing attractive yellow flowers; a large crimson-flowered *Amaryllis Mooreana*, a large *Echeveria agavoides*, *Saracenia purpurea major*, and a nice plant of *Pleocnemia Leuzeana*, and his new curiously formed fern *Adiantum gracillimum*, with pinnea as small as spray, one of the most delicately beautiful of all the Maiden-hairs, and other good things, more curious than interesting here.

Next we come to the collection of the Lawson Nurseries, who staged a very large collection of select plants, which we have not the room to enumerate, except the newest and most interesting. In this collection we find a decided novelty, also a Maiden-hair fern, which at once attracts attention from the oddity of its growth, the first fronds growing pendant over the pot, and when these have attained a length of about five inches, a new frond begins to grow, not from the root, but from the point of the old frond, and so on. In the specimen exhibited there were four generations of fronds thus attached to each other like a chain, each link rooting from these points when placed in contact with soil. This graceful fern is finely adapted for hanging baskets, and is named *Adiantum caudatum*. Next we note their new *variegated* Cornish Moneywort, *Sibthorpia Europæa variegata*, a delicately beautiful little plant, its small, white-margined, dense foliage growing very close to the earth. Next we note a pretty, but little known hardy, dwarf, dense-growing plant, with myrtle-like foliage, *Pernettya candida*, bearing fruit-like, mottled, smooth, fleshy, white balls or berries, shaded with pink, resembling small birds' eggs. Also the pretty coral-fruited moss, *Nertera depressa* (or coral-berried Duckweed), and a leathery-leaved Cycad of distinct habit—*Zamia purpurea*. Also a fine collection of well grown specimens of autumn-blooming Clematises, and a well colored plant of the new *Ficus Parcelli*, *Dracæna magnifica*, the new *Artocarpus Cannonii*, and a new species of Todea from New Zealand. The Messrs. Thymes had a very fine collection of new Crotons, Dracænas, Cycads and table Palms. In their collection we noted *Chamærops*, *Stuericantha* (a beauty of a Palm), *Astrocargon Mexicanum*, the *Cocos Weddelliana*, *Kentia Forsteri*, and a very pretty plant of *Gesnama gracilis*. Space forbids my enumerating further. The Messrs. Methvens were also very strong in stove foliage plants, comprising new Aroids, Azaleas, Crotons, Dracænas and other fine plants, for which they received the premium award.

And last, but not least, we come to the splendid collection of Messrs. Veitch & Sons, which contains many of the rarest and finest new plants lately introduced into cultivation in Europe. As already mentioned, the *Adiantum princeps* got a special first prize. It was one of the notable plants of this collection, as also *A. speciosum*. A new highly colored Rhododendron of the *jasminiflorum* type, called *Vesuvius*, attracted attention, as also the *Lapageria alba*, with its numerous trumpet-flowered, pure white blooms, and a Tillandsia with orchid-like foliage and a flower

like a fan, scarlet, yellow and green in color. There were several new Crotons. The most conspicuous was *undulatus*, which has the lower leaves stained with blood-red spots, and the upper golden yellow, and Disraeli, with very peculiar cut leaves. Among the numerous Nepenthes, the most noteworthy was the rare *N. lanata*, laden with great wide-mouthed pitchers, each furnished with curiously fringed wings, and the noted North-American Parrot's-bill Pitcher plant, named *Saracenia psittacina*. Among the group of orchids we noted *Odontoglossum Alexandræ*, beautifully flowered; but the finest of the group was a new seedling Cypripedium, between *C. Stonei* and *C. barbatum*, with dark green leaves, netted with darker green, bearing a two-flowered spike of large purple-lipped flowers, the upper sepal being very broad, and striped with wine-red, the petals being green, spotted with blackish purple. Among other curious plants we noted the *Drosophyllum lusitanicum*, one of the few plants having revolute venation. I must close and only note a fine plant of *Azalea elegantissima*, and the striking *Nepenthes cuneata*, with its fringe of large saw-like teeth. Before taking leave of this superb collection, I may add that it and the Williams and Lawson collections were each awarded special certificates for their general excellence.

And now I must run very lightly over the flowers, etc., in the small side-rooms, the most conspicuous of which was several groups of Gladioli spikes, the best collection being those of Messrs. Robertson & Galloway, comprising thirty varieties, the whole of them being very evenly grown spikes of lovely colors and full flowers. This collection was much admired. The varieties we noted were Schiller, Meyerbeer, Princess Mary of Cambridge, Psyche, Orpheus, Picturata, Grand Duchesse and Undine. In Dahlias, Messrs. Downie & Laird staged twenty-four extra choice blooms, and W. Paul the same quantity of very good flowers. We noted as fine Mrs. Harris, Mrs. Saunders, Picotee, Flag of Truce and Royal Queen. Some very fine seedling Phloxes were also exhibited, and French and German Asters. The latter were very perfect flowers, and of fine colors. There were also some fine stands of cut Roses, considering the lateness of the season. We noted excellent blooms of Gloire de Dijon, La France, Alfred Colomb, Souvenir d'Elise, Dr. Andry, Senateur Vaisse, Mme. Victor Verdier and Mme. Villermoze. There were also three large stands from the Messrs. Dickson, of Belfast, of very perfect Roses. I have only one fault to find with them: they were unnamed. Of bouquets there were about a dozen very tastily arranged ones exhibited, formed of choice, fragrant flowers, such as Eucharis, Stephanotis, White Lapageria, Tea Roses, White Sweet Peas and Gardenias, neatly and lightly garnished with fern fronds, sprigs of heaths, etc.; but I missed our decorative gem, Smilax.

In my remarks on odd plants, I overlooked mentioning the *Discaria Toaneaton* (or Wild Irishman of New Zealand). This is certainly an odd, jagged, rough-looking customer of a plant. I have missed many plants more worthy of mention, but they can doubtless be found in the British horticultural journals' reports of the show, while I doubt if this one will be mentioned.

In closing, I will only remark that, being associated with the business professionally, I have been much interested in this contest where the issue has been between professionals, gardeners and amateurs, they having been fairly pitted against each other, the competition being of the keenest description, each turning out exceedingly fine and large collections of fruits, stove and greenhouse plants, etc. As to the division of the honors, I must refer parties interested to the reports of the *Gardeners' Chronicle* and other journals. Although quite ailing, I felt enough interest to attempt a condensed account for the benefit of the folks at home; and if I have succeeded in making it sufficiently clear and interesting to them, I may furnish them through THE HORTICULTURIST, from time to time, some items of interest from my note books, made in the last few years, while journeying from country to country in quest of health, where I visited the gardens, greenhouses, parks and conservatories of note, both private and public, this being my principal enjoyment.—*Paterson, N. J.*

The Greenhouse.

Greenhouse for November.

WE must now look for the enjoyment of inside flowers, for except in a few sheltered corners, in this latitude, outside flowers have disappeared for this year; and although at the end of September the weather is warm and pleasant, the sharp frost on the 22d destroyed the beauty of all outside plants which were at all tender. Such plants as Cannas, Tuberoses and Dahlias were entirely destroyed, so far as beauty was concerned, for this season. It is unfortunate that we generally have a sharp frost about the third week in September, destroying the tender outside plants, and frequently have no more frost until a month later, so that plants which escape the first frost are in full beauty for a month or six weeks later in the season. But it is wise to have any plants required for stock housed on the first appearance of frost, for the second frost is generally much sharper than the first, so that few tender plants escape. It is not necessary to place hardy forcing plants under cover until about this time; if protected too early, the plants are not so well matured, and do not go thoroughly to rest. This is very essential to plants required for early forcing, for if not thoroughly matured, but few or no flowers will be obtained.

Cold Frames will now require protection at night, if it is necessary to store any tender plants in this structure; but if nothing but hardy forcing plants are stored here, a little frost will do no harm. This is a good place to store pot Liliums until they begin to grow; and if the pots are plunged in ashes, they will require no water until the shoots are above ground, when the plants may be removed to the greenhouse. Now is a good time to repot Lilies of the Japan class, before the roots are very active; for these plants are rooting all the winter, and if disturbed after the roots are active, they will be much injured. These plants require potting deep; in fact many good growers employ extra deep pots for growing Lilies, as the principal roots are formed round the young stem. A good open soil, without fresh manure, is best for these plants; and we usually only fill the pots about two-thirds full of soil when potting, and fill it up when the shoots have advanced in growth.

Camellias will now commence to flower freely. Give the plants a good soaking of water when required, which will not be often, unless in small pots and in a very dry place; but the plants must not become very dry, or the buds will drop. Give the foliage a good syringing with soapy water to remove dust. This is best done before the flowers commence to open much. After the flowers commence to open, it is difficult to clean the leaves without injury to the flowers. A night temperature of from 40 to 45 deg. is best for these plants; the flowers do not open in quantity so early, but are much finer than when grown in a higher temperature.

Azaleas.—The same temperature is best for these plants, except any required for very early blooming, and young plants. These will require a higher degree of heat, and also to be kept moist by a good damping over the foliage. But see there is no thrip on these plants; it will increase very fast in a high temperature, and be difficult to destroy when the plants are making young leaves, without injury to the foliage. Give all the plants, while at rest, a good washing with the mixture recommended in a previous number. If the plants are clean, it will do them no harm, and act as a preventive; and if they are infested with insects, which they usually are if grown on the open-air system, the mixture will destroy it. We saw some nice young specimen plants completely spoiled last winter by allowing thrip to get established, and keeping the plants in a rather high temperature through the winter. Then, as a further help towards finishing these unfortunate plants, they were turned outside in the early part of the summer for a time, until they looked like starved huckleberry bushes in the autumn, and when nearly dead, brought back into a warm house to make a late growth, with the probability of another extra fine crop of thrip instead of

flowers. We may mention that the last season has been unusually favorable for Azaleas out of doors. The weather has been cool and moist most of the summer, so that they have not had all the life dried out of them.

Heaths.—See that these plants do not become very dry, but water with care. Give plenty of air without allowing a draught of cold, dry winds directly on the plants. Look out for mildew.

Pelargoniums and Geraniums will require less water, but give a good watering when required. Pelargoniums will soon require larger pots. Any good, moderately rich loam will grow these plants well; but it is not well to give too much manure in the soil—the strong-growing sorts make too much foliage. Fumigate with tobacco occasionally, to prevent the green-fly from establishing itself. Cuttings rooted during next month make nice dwarf plants for flowering during next summer, and the cuttings root as freely now as any time. Bedding Geraniums must be looked over and cleared of dead leaves. These plants will keep well in small pots, but if there is spare room, they make better plants if grown in about four-inch pots; but this cannot be afforded in many gardens.

Verbenas must be fumigated and kept as cool as possible, or the plants will become diseased. If the plants must be grown in the house used for more tender plants, they must be placed at the coldest part of the house; or they might be kept in a cold pit, from which frost is just excluded. Many growers employ seedlings, but our experience has not generally been favorable.

Gloxineas, Achimenes, Caladiums and Tuberoses at rest, will all winter well under the stage, in a house, the temperature of which is about 60 deg. through the winter. Many growers are unsuccessful with their Tuberoses from keeping the bulbs too cold during the previous winter, and Gloxineas and Caladiums decay from the same cause.

Bouvardias grow and flower well in a winter temperature of from 50 to 60 deg., and when planted out, give abundance of flower with very little trouble. Very few of our readers can grow permanent plants from year to year, as it interferes with the arrangement of the house at other times; but where it is possible to treat these plants as shrubs, there is no doubt the largest quantity of flowers are obtained with the least trouble and expense. We call to mind two places where this is done, and as many flowers cut from one plant as from fifty average plants grown on the usual system; and all the labor required is an occasional watering at the root and washing overhead with the hose. It may be said the plants will become dirty, but it is not so in these instances.

Ferns and Lycopodiums will now require less water, and must not be watered over the foliage, for the wet remains on the leaves long enough to cause decay and spoil the beauty of the plants. Those species which lose all or most of their leaves at this season, can be placed where they receive less water than the evergreen species. The golden and silver varieties, except Gymnogramma triangulæ, which is nearly hardy, require a temperature of at least 60 deg., and to be kept moderately dry, or the plants will be sure to decay. These are the worst subjects for a wardian case. The confined moisture very soon decays the foliage, and the plants die away in a very short time. Adiantum Farleyense is another fern which requires a good heat at all times. Some growers allow this species to lose all its foliage in the winter; but this weakens the plants very much, and the succeeding growth is small and weak. Woodwardias, Dicksonias and several varieties of the Gleichenias are best grown in a cool greenhouse; the growth is finer, and it is less trouble to keep the plants clean. This is a good season to sow fern spores; they do not dry up so soon as in the summer.

Agaves, Echeverias, Cactus and other succulents require careful watering during the winter. Large plants will seldom require watering, but plants in small pots become dry in a much shorter time, although a look over once or twice a week is usually enough for these, unless they are placed in a very dry position. But it is better to keep on the side of dryness than to overwater, for the roots are

soon killed, and some varieties decay very soon if allowed to become too wet. The winter-flowering Echeverias of the splendens and retusa class will require more water than many others which are making little growth. These plants are very useful for growing in rooms; they are little trouble, and the dry atmosphere does them no harm.

The ***Epiphyllums*** must not be neglected, for they will now commence to flower, and, if a dozen or so varieties are grown, will continue to bloom in succession through the winter. These are excellent room plants for winter, requiring little attention, and growing and flowering well in the dry air of a room. They are also easily propagated, both by cuttings and grafts. As dwarf standards, they perhaps are most attractive.

Orchids will be quiet and generally at rest this month. The plants generally will require much less moisture, both to the roots and also in the atmosphere; but it is not well to keep the plants dust-dry, for it will be necessary to begin to employ more fire-heat, which, combined with the usual dry atmosphere at this season, soon dries up even a comparatively close house. Blocks will require water, unless the day is very dull. In this case, probably every second or third day will be often enough, and where moss is used, not usually oftener than once or twice a week. Dendrobium nobile will only require an occasional sprinkle to prevent the bulbs shriveling and leaves decaying. A temperature of 50 deg. will suit these plants, and also Cœlogyne cristata. Cypripedium insigne will now be in flower, and must be kept cool if the flowers are required to last a long time. The lovely scarlet Sophronitis grandiflora will be in flower. This is a perfect little gem. The plant being of small growth, occupies but little room. Zygopetalums in variety will now be in flower. These are fine, showy old-fashioned plants, but valuable for free blooming and easy growth. The perfume of the flowers is very pleasant on a bright, sunny day. Lælia autumnalis will now be in full flower. This is a lovely orchid, which can be grown by any one having a greenhouse. We grow a quantity of these in the Camellia house. Lælia albida and anceps will be commencing to flower. These are beautiful things, and last a long time in flower. Cattleya trianæa will now commence blooming, if the plants have been grown in a warm house. If grown cool, they bloom later; in fact this species may be had in flower for five or six months in the winter, if grown in different temperatures. Phalænopsis Schilleriana will now be commencing to flower. This is one of the most lovely orchids grown, and will do well in a lower temperature than the other species of Phalænopsis. It is, however, one of the high-priced varieties, and will never be cheap. Several species of Oncidium will be in flower, such as tigrinum, Barkeri and filipes. The bright yellow lips of these are very charming, and the plants require but little heat. We will shortly give a list of a few orchids which can be grown in an ordinary greenhouse.

Ferns.

BY JOHN ROBINSON.

[From a Paper read before the Massachusetts Horticultural Society.]

OF the *Lycopods*, the genus *Selaginella* is the only one much cultivated. The allied genera *Lycopodium* and *Selaginella* have been much confused; they are distinguished by their different modes of fruiting. We will consider their cultivation farther on, in connection with the ferns, but I would here suggest, as a topic for discussion, the question why it is that the Lycopodiums are cultivated only with great difficulty, while the Selaginellas are managed with the greatest ease. *Marsilia quadrifolia*, a native of Connecticut, has been cultivated at the Botanic Garden, and has become established in ponds in this vicinity. The leaves resemble those of an oxalis; they float upon the water, the spores being at their bases. The plant is perfectly hardy, very pretty, and grows quite rapidly.

Equisetums, or Horse-tails, are an interesting and neglected genus. For out-door work nothing can be better, for certain effects, than the *E. sy vaticum*. It is not rare in our woods, and can be transplanted without much difficulty. It is already in use in England,

and why not here? Other species of *Equisetum* are good, but none compare with this among our natives. It grows from twelve to eighteen inches high.

Ferns are more largely represented in cultivation than all other Cryptogams. They vary in size from some species of *Trichomanes*, which are not half an inch high, to the noble *Dicksonia antarctica*, which attains a height of from sixty to eighty feet, with a spreading crown more than one hundred feet in circumference; yet in each of these extreme cases they grow from spores which, even under the microscope, show but a very slight difference in form. A few notes on the introduction and cultivation of exotic ferns in Europe may be interesting.

The first species taken to England were *Cystopteris bulbifera* and *Adiantum pedatum*. They were carried thither from Virginia by John Tradescant, in 1628. Two other American species, *Onoclea sensibilis* and *Camptosaurus rhizophyllus*, were introduced prior to the year 1700.

In 1768	there were at Kew	10	exotic species.
In 1789	" "	34	"
In 1813	" "	83, at Berlin	30.
In 1822	" "	40, "	91.
In 1846	" "	384.	

In 1850, eight hundred and fifty species were under cultivation in Europe, and in 1866 more than a thousand at Kew alone. To Sir W. J. Hooker and his associates belongs the credit of so great an increase during the later years. I cannot learn exactly how many are now under cultivation in America; probably from six hundred to eight hundred species.

The habit of making so great account of mere varieties as is now the custom in England, seems absurd and wrong. Almost every extended list describes over fifty varieties of some single species. Probably the majority of these are abortive, malformed, ungraceful plants, religiously cared for and perpetuated, yet entirely unworthy of a place in any conservatory. Why should these be preserved any more than an unhealthy or malformed Pelargonium or Fuchsia? It is certainly not in accordance with the true spirit of improvement in cultivation that these are kept. There are variations of species, however, of great merit, as the *Adiantum Farleyense* and var. *cristata* of *Aspidium Filix-mas*, besides many others.

We cannot, in cultivating ferns, do better than to look at nature. I know but one fern that will grow with its root, or rather its rhizome, under water; they need a plentiful supply, but must have perfect drainage. If in pots or pans, for the more delicate kinds one-third of the pot should be filled with finely broken crocks, with a bit of dry moss on top to prevent the earth washing through to clog the drainage.

The soil which is acknowledged to be best for general use is about one part river sand, one part virgin loam, and two parts leaf-mould or peat, not made too fine. I have never tried manure, nor can I find any notice of its being used, except in one instance, when well decomposed stable manure was tried with success. An even temperature, avoiding drafts, and a humid atmosphere are to be desired for the tropical fern-house; the house itself to be sunk below the ground, and to face any way but south. The water-shedding pinnules of the species of *Adiantum* suggest that showering the top of the plants is unnecessary, and I find, by a slight personal experience, that this is true, as has also been found the case at the Kew gardens, according to the reports. The necessary dampness may be kept up by having wet sand on the benches, and by sprinkling the ground as well. Many species of *Gymnogramme*, *Notholæna*, *Cheilanthes* and *Pellæa* grow in exposed situations, and will endure drought and the direct rays of the sun. Some may be treated as severely as a Cactus, while most species of *Asplenium*, *Adiantum* and tropical ferns generally would be killed if treated in the same way. Species of *Trichomanes*, *Todea* and *Hymenophyllum* require, in any ordinary house, a bell glass for extra protection, and should be placed in the darkest corner.

Ferns which are reproduced most readily from spores are seldom easily divided at the crown, while those with a creeping rhizome,

that may be quickly separated, are seldom abundantly produced from spores.

In raising ferns from spores, many ways are advocated. Doubtless all are good enough, the great requisites being warmth and plenty of moisture. It is well to have the earth upon which the spores are sown made firm, and a few broken pieces of pots crowded into it. Of course water should not be dashed upon the place where planted, as the spores would be washed away. In most fern-houses the air is full of the spores; we breathe them without knowing it, and they will select a congenial spot, often growing without troubling us to plant them.

Very pretty effects are produced by growing ferns in cocoanut shells, wire baskets and hollow stumps. Some species of *Adiantum*, *Blechnum*, etc., form underground crowns, which will appear wherever there is an opening in the side or bottom of the basket in which they are grown, finally covering the whole with foliage.

For the moss-lined wire basket, the *Davallia* is best. The *Platycerium* (Stag-horn fern) will make a fine ornament for a stump; it requires but little earth, as it is almost epiphytic in habit.

In the wardian case, the smaller-growing species of ferns are most desirable. The Selaginellas are invaluable here, as they seem to prefer this confined life to the more exposed greenhouse; they like a soil suitable for most ferns, and owing to their habits, need but slight depth of earth.

The subject of Ferneries might well occupy an entire morning for its discussion. Suffice it to say that the fatal mistakes made in constructing a fernery for the parlor are, to have too much wood-work, and too large-growing plants for the height of the glass.

With the climbing and arborescent species, or with the natural cultivation of ferns under glass, I have had no experience, but trust we may hear from those who have.

For out-door cultivation, our native species are about all we can use. I do not know of any species other than North-American used in out-door cultivation in this region. Doubtless there may be a few that would do well—natives of China, Japan and Northern Europe. A very interesting paper on the "Geographical Distribution of American Ferns" has just appeared in the "Bulletin of the Torry Botanical Club," from J. H. Redfield, which may give us light upon this subject, and perhaps show us where to look for ferns to cultivate out of doors. It has always been a surprise that more of our hardy ferns should not be used as borders to lawns and at the edges of groups of trees and shrubbery, especially where there is a northern exposure. Such species as *Struthiopteris Germanica* (growing six feet high), *Onoclea sensibilis* (two feet), *Aspidium spinulosum* (three feet), *A. cristatum* (three feet), *Asplenium thelypteroides* (three feet), *A. Filix-fœmina* (three feet), all the *Osmundas* (three to four feet), *Dicksonia* (two to three feet), and many others, would be most beautiful in such situations, particularly *Osmunda Claytoniana*, the fertile fronds of which, with their dark bunches of fruits, form a most beautiful contrast to the light green sterile ones which grow in a whorl around them. *Aspidium marginale*, *Phegopteris* (two species), *Asplenium* (two or three species), *Woodsia* (two species), *Polypodium* and some others are useful on the rock-work. I have about thirty species of natives, cultivated in an odd corner out of doors, where they serve as a screen before an ugly fence, require no attention (except perhaps to be watered during an extended drought), and are a source of great pleasure to myself and friends. I wish this branch of fern culture might receive more attention.

Ferns are troubled with as many pests as most plants, not even the hardy ones escaping. The green-fly is of little consequence, as it is easily kept out of any well regulated house. The various scales are more to be dreaded, as they often increase unobserved for a long time on the under side of a frond. The thrip is very hard to kill out when once established; it is most likely to attack plants which are in a temperature higher than their natural one. The red spider will be kept down, as with the roses, by syringing. Various slugs and even

the currant worm will attack the out-door species, and another cryptogamous plant, a fungus, is often found on the fronds of ferns, imitating by its shape and position the fructification of the fern itself.

In regard to nomenclature, the many synonyms found among the names of ferns prove troublesome in correctly labeling a collection. There are also many garden names which have been given to plants apparently without authority, and which add to the confusion. As there are but few known hybrids, and as the origin of almost all the varieties now cultivated can be decided, it is much easier to name ferns correctly than it is many other classes of plants that are the result of much hybridization and long cultivation; therefore it would seem to be the duty of all such societies as this to recognize but one name and that the correct one. Thus, by a joint and continued action with other societies, one system of correct names would come into use, saving much confusion to future cultivators.

As an illustration of this point I may mention that at the last exhibition at Music Hall, in the same collection were two fine specimens of Selaginella growing in pans; one was ticketed *Lycopodium densum*, the other *Selaginella densa*. These are of course the same name, and both plants were, without doubt, *Selaginella apus*, a native of North America, from which the cultivated plant does not seem to vary.

New Cannas.

Adrien Robine.—The finest dark-foliaged variety we have seen; five feet high.

Gloire de Province.—Yellow-spotted orange; five feet.

Prince Imperial.—Very fine scarlet; very free bloomer; height four feet.

President Favre.—Fine dark foliage; crimson flower; eight feet.

Madame Schmidt.—Orange scarlet; six feet.

Victor Lemoine.—Dark orange; five feet.

Madame Combet.—Dark foliage; bright scarlet flower; six feet. A splendid variety, said to be one of the best by the editor of the English *Garden*, and we consider it one of the best.

Nardy.—Dark foliage; bright scarlet flower; very free bloomer; six feet.

Madame Celles.—Bright rosy scarlet; very free and fine; six feet.

Souvenir de Hyrers.—Bright orange, edged with gold; very distinct and fine; five feet.

Admiration.—Dark foliage; dark rosy scarlet flowers; height five feet.

Edward Moren.—Yellow-spotted orange; height five feet.

Majesteuse.—Fine dark foliage; orange flowers; height eight feet.

Compactum.—Bright yellow-spotted orange; height six feet.

Gamboinensis.—Dark foliage; light orange scarlet flowers, dashed yellow; six feet.

Livingstone.—Dark foliage; rosy orange flowers, with yellow lips; height five feet.

Gloire de Lyons.—Very dark foliage; light orange flowers; seven feet high.

Plantieri.—Bright orange flowers; height eight feet.

Tesere d'Or.—Rosy orange flower, edged with gold; height five feet.

Surprise.—Very large bright orange-scarlet flowers; height eight feet.

Coquette.—Dark foliage; orange-scarlet flowers; height six feet.

Imperator.—A magnificent Musa-like plant, with splendid spikes of bright scarlet flowers. This makes the finest centre of a bed, or for a single plant on the lawn it is grand. It is the only very large-growing variety which flowers during the season for outside planting. Height ten feet.

Crozy.—Flowers yellow-spotted rose, very distinct; height five feet.

Brenninghsii.—Leaves striped with white; a good grower; flowers rose and orange; height five feet.

All these varieties are very fine and distinct, and a great improvement on the best of the old varieties, although many of the large-flowering old sorts made a fine show, both in foliage and flower. We have grown all the above sorts, and can speak from facts.

Garden Gossip.

Suggestive Notes.

Small Weeping Trees.—Owners of small lawns, or even of contracted yards, need a class of low-growing trees to ornament their surroundings, embracing an occasional specimen of peculiar outline—something, in fact, to distinguish it from the neighboring forms; and here is where the eccentric growth of the Weepers is most appropriate. The well known Kilmarnock Willow stands high in this respect, when well cared for and properly trained. The so-called American Fountain Willow is rarely found in a perfect state; indeed, at its best it is inferior to the above. The neat little Dwarf Weeping Cherry makes a perfect specimen at all times. *Populus grandidentata pendula*, when grafted high, hangs all round the stem in a peculiarly graceful manner. Among evergreens, although not very hardy in the Middle States, may be mentioned *Biota orientalis flagelliformis*, *Juniperus oblonga pendula*, and *Retinispora filifera*.

Bronze Geraniums.—For brilliant effect in bedding, this class of foliage plants is destined to become very popular, owing to the richness of their markings, as well as their reliability under a scorching sun. During the past season, in a large collection of variegated leaves, the "Bronzes" were quite as showy as any, and made a splendid growth. Beauty of Calderdale, with its fine chocolate zone on a rich yellow ground, being older and more plentiful, has perhaps been more fully tested, and it has stood the test well; but Black Douglas and Constantine are especially beautiful. Could we use the tricolor class as they do in Europe, the above would have to come in "second best;" but for our climate the Bronze varieties are far superior. Notwithstanding most of the plants with variegated foliage require rather poor soil to retain their bright markings, these are benefited by a liberal amount of stimulating manure, and a good mellow soil to grow in.

Shrubs for Winter.—Those of our readers who are fond of flowers during winter, and who are not too busy to take good care of them, should bear in mind that our hardy flowering shrubs and herbaceous perennials are excellent for this purpose, that is the early-blooming kinds. The Double White Almond, Azalea amæna, all the Deutzias, and especially D. gracilis, the Wiegela family, the Forsythias, Spiræa Reevesii and its double form, and the Persian Lilac, all force well. Among hardy perennials we use Dicentra spectabilis, Astilbe Japonica, Lily of the Valley, Mountain Pink (Phlox subulata), Violets, etc. To have the foregoing in perfection, all that is necessary is to secure strong, young, bushy plants, pot them in light, mellow soil, and stand them in a cool, shady place until severe frosty weather arrives; they may then be removed to a cellar until needed for blooming. By placing one of each in a warm, sunny window, they will at once commence growing and blooming as freely as if in the open air.

Tender Shrubs.—We have a class of hard-wooded plants that are not sufficiently hardy to live out-doors during winter, neither do they require a high temperature; but being of easy cultivation in a cool room, should receive attention from the amateur florist. Among the choicer kinds we would suggest Daphne Indica, Azalea Indica, Camellias, Oranges, Lemons, Cape Jessamines, Oleanders, Pomegranates, etc. A large bay window, partitioned off from the living room by means of glass doors, enables one to preserve the atmosphere cool and moist—just what the plants most enjoy. By opening the doors, we can admit more heat, or by lowering the sash, fresh air can be introduced. Should the floor be covered with zinc, it is an easy matter to syringe the foliage frequently and effectually, without damaging anything in the room.

Autumn Leaves.—A great many people suddenly conceive a liking for the beautiful autumnal foliage, as it commences to color; but very few prepare them correctly. There is one feature of the operation that is absolutely necessary to insure success, and that is, to absorb all the moisture from the tissues as quickly as possible. This cannot be done by

merely placing the leaves between the pages of an ordinary book, but, on the contrary, the paper should be very soft, so that, when heavy pressure is applied, a day or two will be sufficient to remove all traces of moisture. The colors are best retained by applying a warm iron to the paper, care being taken not to rumple the leaf within. Fronds of ferns must be treated in the same way; they form exceedingly showy ornaments for vases during the winter months. When thoroughly dry, they should, of course, be varnished. A little knowledge of the fern family, and where the various species grow, will aid very materially in heightening the effect of a bouquet or basket, as the contrast in form and outline is quite distinct.

Window Plants.—In looking over our florists' catalogues, it is a difficult matter to select a list of winter-blooming plants suitable for the window—plants that will not need special culture, but will bloom freely under the fostering care of one unexperienced in the business. Perpetual Carnations, such as President Degraw and La Purité; Bouvardias, white and scarlet; Heliotropes, Cyclamens, Double Chinese Primrose, Mahernia odorata, Begonia fuchsoides, Weltoniensis, Weltoniensis alba and Richardsoni are all suitable for the purpose. They do not require strong heat, nor a great abundance of water. Give fresh air on mild days, sprinkle over the foliage, keep off the insects, and never fear but there will be plenty of flowers when everything outside is covered with ice and snow. Repot before the forcing process commences, and allow the plants a little rest before setting them in a sunny window.

Care of Bulbs, etc.—Carelessness never pays in any branch of horticultural work, but especially is this true in lifting and preparing our bulbs and tubers for their winter's rest. We have seen amateur gardeners dig their Tuberoses and Dahlias during a wet time, and with the earth still damp clinging to them, place the roots in a box in a corner of the cellar, the atmosphere of which may be very possibly damp and cold as well. When the planting season arrives, they wonder what induced the "bad luck" that always attends their work. Dig these roots when the ground is as dry as possible, and after the first frost has injured the foliage; spread them in the air to dry, avoiding, of course, frosty nights; shake off the soil, and carry into a dry, airy apartment, to remain until thoroughly prepared for winter. They may then be packed loosely, without any sawdust or other material, in a box, and set away in a mild atmosphere until spring, care being taken that no moisture is in the air. Watch for mice, as they will soon destroy some varieties, as the Tiger-flowers, leaving not a trace behind.

Autumn Flowers.—Frosty nights have made sad havoc with our former gay borders; the tender plants having succumbed, the late-blooming perennials are now looking especially attractive, standing alone in all their glory. The following constitute the cream of the list: Asters, especially *A. Novæ Angliæ* and *A. Novæ Belgii; Tricyrtis hirta, Zaponica nodiflora*, a pretty little prostrate Alpine; *Tunica saxifraga, Funkia ivafolia, Lepachys columnaris, Tradescantia Virginica* and its varieties, *Plumbago Larpentæ, Saponaria Caucasica fl. pl.*, and our native "Snake's Head," *Chelone glabra*. We must not overlook the beautiful Chrysanthemums in their wonderful display of colors and form. The Chinese or Large-flowered, the Pompone or Small-flowered, and the Japanese class are all extremely showy. Place them in a southern exposure, or the bloom will be too late. A bed on the south side of a large evergreen answers the purpose, and always looks well.

Liquid Manure in the Greenhouse.—Manure is best applied to plants in pots in a liquid form. That obtained from sheep droppings or from cow-dung (with a little soot added to it if it can be had) is preferable to that obtained from chicken or pig manure, guano or even horse droppings, as it is less stimulating and does not cause such an excessive leaf and stem growth, or produce as serious injury if incautiously applied.—*American Garden.*

Gardening.

History of the Marblehead Squash.

THE following statement is published in the *Western Rural* from the first disseminator of the Marblehead squash, who now resides in Richmond, Ill.:

About twelve years since, a member of my family visited a relative in Milwaukee. Alexander Mitchell's gardener, a Hollander, had furnished the family with winter squashes. These were so highly prized that seeds were procured. They were then called the Hubbard squash. We cultivated them several years before we saw the true Hubbard, since which we have been very careful to prevent intermixture with other varieties.

All or nearly all cultivators in this section have discarded the Hubbard, and are raising our variety. One farmer who had previously raised the Hubbard, but for the last six years has raised our squash, told me recently that he considered our squash as much better than the Hubbard, as the Hubbard is better than a pumpkin. Our commission merchants write: "Your squash is very satisfactory."

I had read Gregory's work on squashes, and knowing that he was an enterprising seedsman, I sent to him, during March, 1872, a perfect squash, and asked him to test it. He replied that he was much pleased with the squash, and ordered four pounds of the seed. Next fall he ordered 300 pounds more of the seed, and named the squash the Marblehead, after the name of the town where he resides, as he knew no other variety like it. The Hollander who furnished the squashes twelve years ago, has left Milwaukee; consequently all trace through him is lost.

The Marblehead squash is not mature until winter. It improves during all the fall and early winter. During all the winter it is fine-grained, rich and sweet, many of the specimens keeping sound until late in the spring.

As to the manner of cultivation, the ground should be well manured and thoroughly cultivated. It is useless to plant among corn or on poor soil. We cultivate thoroughly, and mark the rows as for corn both ways; then plant two seeds in every hill, in every second row, the planted rows being nearly eight feet apart.

The cucumber bug is very destructive to the young squashes. Each one will have his remedy, the same as for cucumbers. Some apply ashes; some put square boxes about the hills; others kill the bugs. If not cared for, a large part of the squashes will be destroyed. Clean cultivation is essential.

It is sometimes useful to direct the vines when they first begin running, but the vines should not be pulled up after they are strongly rooted in their course. It is sometimes necessary, when all the plants grow, to take one out of the hill, or they may get too thick.

Warm, moist weather facilitates the growth of squashes. If the summer is very dry or cool, they do not produce so much. Woodchucks must be watched, as in many localities they destroy many.

In the fall, a light, common frost does not injure the keeping quality of the squash. A hard freeze, such as we sometimes get early in October, which freezes half an inch or more, spoils them for keeping or use, except for immediate feeding.

Soon after all the vines are killed by a common frost, and the weather dry, they must be gathered very carefully, and handled every way cautiously, and put in winter quarters. When we are ready to gather our squashes, we take a stiff-backed small saw, and saw the stem off, say half an inch from the squash. If the stem is broken off, it will decay much sooner. All the handling should be with the greatest care, to prevent bruising. They must be dry when placed in the cellar. The temperature of the cellar should be cool, but freezing spoils them.

We now cultivate them quite extensively to supply the large seedsmen. We do not cultivate any other variety, summer, winter, or even a pumpkin, on our farm, as our special endeavor is to keep them pure. Any tendency to sport is attended to at once.

Our neighbors are of the opinion that every farmer should raise from one to five acres. For table use during all the winter, they are nearly equal to the sweet potato, either baked or boiled. Fed in the raw state to cows, after the seeds are out, they are found to increase the flow of milk more than any other feed usually given them. Fed raw to hogs, they are nearly equal to corn. Young hogs do remarkably well on them for weeks and months.

My family do not claim to have originated this squash, but hope we have done some good by saving it from oblivion.

Germination of Seeds.

AT a meeting of the Wayne County Horticultural Society, the subject of "Germination of Seeds" was brought up and discussed. Of this a report is made by C. A. Lee, who says:

All seeds require a certain degree of heat and moisture in order that they may germinate; and if men will do their work well, and at the proper time, nature will do her work, and they will be rewarded for their labor.

Amongst gardeners the time of seed sowing is of great importance, for their object, especially in the vicinity of large cities, is to bring the first vegetables of their kind to market, for on that depends their profits for the year. For instance, beets taken into Detroit market the first of June are worth one dollar per dozen bunches (48 beets); Drumhead cabbage, the second week in July, two dollars per dozen heads. But those vegetables cannot be had at that time without using artificial means of starting the seed to grow.

Now we sow beet seed in a hot-bed of a temperature of 70 degrees, the first week in March. They are up in from five to seven days, and by proper care they are ready to be transplanted in the open ground from the 20th of April to the first of May; and if well cultivated and kept clear of weeds, they are large enough for market by the first of June. Beet seed sown in the open ground about the middle of April will germinate in from eight to twelve days, and are ready for market the last of June, and are worth at that time forty cents per dozen bunches. And here let me say, after five years' experience, they grow to the greatest perfection in heavy soil.

Cabbage seed sown in hot-beds about the middle of February, at about the same degree of heat as for beets, will germinate in four days; but sown in the open ground the first week in April, will not germinate in less than twelve days. Cabbage seed sown at that time are ready to transplant into a cooler frame (not cold frame) about the middle of March, and by the middle of April make good plants for transplanting in the garden. Care should be taken to have them well hardened off, that is, taking the glass off entirely for a week before planting in the garden. This hardening off of plants enables them to withstand all frost that we have at that season of the year, and they are also less liable to be destroyed by the cabbage beetle, which makes its appearance in this vicinity about the middle of April.

Tomatoes are a native of tropical America; but the seed from unpicked fruit lying in the ground all winter will germinate the latter part of May, and will come to maturity two weeks sooner than if the seed had been sown at that time. Tomato seed will germinate in a temperature of 60 deg. from five to seven days.

Now I think if gardeners, as a rule, would keep a diary of seed sowing, and note the temperature from day to day, and the condition of the soil, that it would be of great benefit to them in future years. It is a well known fact that all kinds of vegetable seeds sown in July will germinate in half the time they would if sown in April; but the sowing of seeds cannot be delayed until that time, with the exception of sweet or flat turnip seed.

Again, in sowing seed there is another thing to be taken into consideration: the depth they should be covered. How often does it happen that seeds are purchased of seedsmen and put in the ground without regard to the depth they should be covered! After waiting a few days for them to grow, they are disappointed, and of course the seedsmen from whom the seeds were purchased are denounced dishonest, when nine times out of ten they themselves are to

blame. Peas may be covered eight inches, and will about all grow. Radish seed covered three inches will germinate; but cover celery seed a depth of one inch, and it is lost forever.

Cabbages as Grown in the London Market Gardens.

WHAT is called the Enfield cabbage is that which is used in the market gardens about London. It is one of the oldest in cultivation, and one of the best; and as growers of it generally save their own seed, they take particular care that their plants of it are not crossed with other sorts. The sowing for the principal crop of this cabbage is generally made on St. James' day, the 25th of July, or some time between that and the middle of August; and if the sowing be made on poor ground, so much the better, as in that case the plants come up stocky and hardy, and stand the winter well, whereas, if made on rich ground, a soft, rank growth is produced, which is much more easily injured. This sowing is, as a rule, made in four feet wide beds, a width found to be convenient for weeding and hoeing amongst the plants. By the time the latter are sufficiently strong to be transplanted, the potato or onion ground is ready for the reception of a first batch of them; and on that cleared of celery, French beans or vegetable marrows, another plantation is generally made. Every empty space under fruit trees or elsewhere is also planted with cabbages. In planting, the ground is lined off into rows, 25 inches apart, and in these the plants are put 15 inches asunder. Between every two rows first planted another is now put in with less care, thus making the plants stand 15 inches apart each way. Early in spring every alternate line of plants, and also every other plant in the line of rows left, are lifted and sold as coleworts, *i. e.*, young open cabbages, a state in which they are preferred by many to such as are hearted. This allows the permanent crop plenty of room to come to maturity. With a view to subsequent plantations, which are made all through the winter wherever ground is vacant, the young plants in seed-beds are removed and pricked out into others a little further apart, in order to keep them in good condition for planting out as long as possible. In this way, indeed, many of the plants are kept till spring, when they are transplanted to succeed those planted out in autumn, and to come in before the produce of the spring sowings, made late in February or early in March, to furnish cabbages from June to August. The plants from this sowing are put out in rows two or two and a half feet apart, and in the intervening spaces are put lines of lettuce, a plant of which is also set between every cabbage in the row. If thought necessary, another sowing is made in the end of March, or April, and sometimes a bed is sown in May, when what are called Rosette coleworts are sown. As the latter are, however, chiefly grown for late autumn and winter supplies, cabbages are seldom sown after March. Moreover, when peas, French beans and vegetable marrows are in, there is little demand for cabbages.

Red cabbages are sown in March, or on St. James' day, and the plants stand about three feet asunder in the rows. As this crop stands until the heads are large and solid, a piece of rich land is devoted to it, and intercropped with potatoes, ordinary cabbages, lettuces, French beans, or other vegetables of that kind. The produce of the July sowing is generally considered better than that of spring.

Market Gardening Crops.

J. B. ROOT, an experienced trucker and seed grower in Illinois, gives the following suggestion in one of a series of articles in the *Fruit Recorder:*

It is difficult to say what crops I would recommend to a beginner, or how much of them, for I know not what may be the soil, or market, or circumstances. I can only recommend some of the leading vegetables, conditioning each with several "ifs," so that the reader may not only know some of the inducements to cultivate them, but also some of the difficulties he will encounter.

Of early sown crops, if one has a warm soil, radishes make one of the most profitable, as demanding little expense except the bunching, which is necessary only when you are sure of your crop and a sale for it. It usually finds large sale at a good price, *if very* early, and is often raised as a stolen crop. Another advantage is the quick returns secured, the crop being raised and marketed in from 40 to 60 days.

Onions, year in and year out, probably yield the most profit of any garden crop, but should never be undertaken in large amount at first, nor even upon a small scale, if the ground be poor or weedy. New ground, one or two years clean tilled, is especially favorable, and along with this, if the grower has an inborn hatred of weeds, he is pretty sure of a crop.

On cool soils and well tilled, early peas are a good crop, but provision must be made to have an abundance of pickers whenever wanted. It also is cleared from the ground in time to allow of pickling cucumbers, late roasting ears of corn, or turnips, and by planting between the rows, fine crops of melons or squash can be grown after them.

Early cabbage pay well when well tilled on *very* rich ground, but most new beginners err in attempting at first to grow largely of early cabbage and late celery, two of the most difficult crops to grow, and demanding the largest outlay and risk.

Early beets for bunching are usually in free demand, and pay well, having no pests, and safe for a late crop, should they miss the early market. But the grower must remember they are bulky, and it takes a great many wagon-loads to realize $100.

Early potatoes in every market are sure of a demand, and one of our surest crops. Economically managed, it always yields a fair profit, and often a very large one. Mulching with manure, to be plowed under for the second crop, insures a good yield, and being all available for the other crop, really costs the potatoes nothing.

Sweet corn usually pays well if brought into the market very early, or very late; but it is so easily raised that in the height of the season the glut drives the price to a low figure. But it is profitable hog and stock feed, even while green. Feed stalks and all, so there need never be any loss upon it.

Melons upon sandy soil in good heart, if protected from their many pests, "can't help but pay;" and the demand grows with the supply, till we can almost say that no market has for any length of time been glutted with them. But "eternal vigilance is the price" of melons.

Winter squash, especially Hubbard, have become such a staple article in the market, that a large demand is always certain, and the grower of a large crop rarely fails to realize well. Failures are often due to insufficient fertility, but more frequently by neglect the bugs are allowed to destroy them.

Tomatoes, if once well rooted, are the most tenacious of life, and loyally yield at least a fair crop, whether the season be a continuous drouth or one protracted rain. Often it is imprudently marketed, and the price driven very low. But it has become such a standard fruit for immediate table use and for canning, that with tact in marketing, or by canning all surplus, a fair price ought to be maintained. I annually market several hundred bushels, but never have sold a bushel for less than seventy-five cents, and more usually have obtained a dollar. On the wagons, ready for market, I do not think they cost me more than thirty cents at the highest.

The root crops, beets, carrots, parsnips, turnips and ruta-bagas, grown upon clayey loam, pay well in most markets; but the important items of expense are their culture and harvesting, and economic methods must be studied.

Growing Asparagus.

D. K. YOUNGS gives the *American Garden* the following plan, pursued in growing this crop for the New York market in the famous Oyster Bay district, and his views as to varieties:

For garden culture, the rows should be at least two feet apart, the plant fifteen inches apart in the row. For field culture, the rows

should be at least four feet apart, the plants twenty inches apart in the row. At this distance the crowns will soon meet in the row, and after twelve or fourteen years' growth there will be scarcely any space left between rows. Plant deep—six or seven inches—in a light, sandy soil, to insure uniformly large shoots; even then there will necessarily be many small ones. If planted only three inches deep, they will become very small after the first three or four years, and "small by degrees and beautifully less" every year thereafter.

Always plant in the spring. The next spring after planting, cut the shoots, as they appear, during four weeks, and each succeeding spring cut them for six or seven weeks. By so doing, the plants produce shoots better in size and quality than when allowed to pass a year or two without cutting. This also prevents the plants producing heavy crops of seeds, which exhaust them more than anything else, except being overrun with weeds.

Three varieties are now grown, although I formerly thought there were but two. These varieties are distinguished by their color—brownish green, green, and a very light green. The first is the most productive, though not as large as the second. "Conover's Colossal" is as good as, and exactly like all others that I have raised, without a shade of difference. After all the noise made, it is provoking that it did not prove just a little better than the older sorts. It has taught me the good lesson not to discard old and well tried varieties for more pretentious and well bepuffed novelties.

Winter Spinach.

GARDENERS are generally aware that autumn-sown spinach gathered in winter has little succulence, and when cooked, is tough and stringy. A German market gardener in our neighborhood is noted for the excellence of the spinach with which he supplies his customers in the very depth of winter. His mode of preparing it is as follows: Before the frost sets in severely, he digs a pit four feet square and four feet deep, covering it sufficiently with boards and litter, as the cold increases, to keep out the frost. During the winter, about once a week, he cuts the spinach in the open ground, gives it a slight sprinkling with water, throws it into this pit, covers it to keep out the frost, and leaves it four or five days, or even a week. It is then ready for marketing, coming out of the pit quite fresh, tender and succulent. We have sometimes thought, on seeing it thus treated, that the leaves had made a fresh growth, so finely did they appear. The philosophy of the treatment seems to be the gradual drawing out of the frost, and the absorption of the water with which it was sprinkled. The effect is, that the leaves and their midribs increase in size, and the plant looks almost as well as it ordinarily does in April or May.—*American Garden.*

Our Grafting Wax.—In making a preparation of beeswax, rosin and tallow, to apply to newly set scions, we have repeatedly given full directions. Ours is to use warm in a liquid state, applied with a small, thin wooden paddle, which can be done rapidly and perfectly. We have ourselves, unassisted, set seventy pear grafts in two hours, using the wax as we recommended, in a liquid state, and every one of which grew and became a part of the tree.

The proportions we use are four parts of rosin, one part of beeswax and one part of beef or mutton tallow. Melt them together in a skillet (which is the best) or a tin cup, and melt well. It should remain in the vessel and be used as needed. Twenty or thirty scions can be waxed with one heating up. When much grafting is to be done, a little fire for heating the wax should be made on the spot, between two bricks or stones.—*Germantown Telegraph.*

BONAMY'S WEEPING BIRCH is the new weeping tree. It was first shown by the Messrs. Bonamy, of Toulouse, France, eight years ago, and is quite an improvement on the old Weeping Birch tree, being more perfectly drooping in the habit of its limbs.

Fruit Culture.

How to Grow Grapes Under Glass.

THE following paper, showing how to grow grapes under glass with little trouble or expense, was read before the Ontario Fruit Growers' Association, at their meeting last autumn, by James Dougall:

Many persons would be induced to erect a small vinery for the culture of the finer varieties of foreign grapes, were it not for the great trouble attending their culture under glass in the ordinary manner, in watering, syringing, ventilating, etc., requiring the services of a professional gardener, or occupying more time and attention than the generality of persons can spare.

By adopting the following plan in erecting the vinery, they will be relieved of the greater part of this trouble, and have a fine supply of delicious grapes, with no more trouble or attention than is required to grow the natural vine out of doors.

The sashes are made stationary, but so that they can be unscrewed and taken off for repairs at any time. They extend from the front wall to within a foot or ten inches of the back wall at the top, leaving an opening of ten inches wide along the top to be closed by sheet-iron ventilators in winter, or when requisite, but which is kept constantly open from the time the vines are uncovered in the spring till they are laid down and covered in the fall.

The principal peculiarity is in the glazing. The glass is laid end to end without lapping or putty, and merely kept in its place by small pieces of tin, and a space of half an inch is left open between every third or fourth pane, so that all the rain that falls on the house is distributed pretty equally over the entire house, very little running off the roof, except in very heavy thunder storms. There is no ventilation whatever below, as a draught I have found injurious to the vines. Any air that comes in is by these openings in the glazing, and the heated air finds vent at the top.

Last year was a very dry one, as well as this, we having no rain here for months; but the vines never suffered from drouth, though they were never watered or syringed from the time they were uncovered in spring, when it was done copiously, till again uncovered this spring. Nor were they the least affected, either last year or this, with mildew or red spider, though previous to adopting this plan I was annually troubled with both, in spite of syringing copiously morning and evening.

My present vinery was not erected for that purpose, but for a small conservatory, and the floor was sunk about two and a half or three feet, with a brick wall all around. About twelve years ago I filled it up level with good compost, and planted the vines all inside, there being no opening for their roots to extend to the border outside. It was intended principally for proving seedling vines of the foreign varieties and of the newer varieties, then out, with a few of the best old varieties, and in a space of twenty-four by fourteen feet contained for several years thirty-six vines, which were thinned out as they were proven worthless, till it now contains twenty-four. This is still too many, about sixteen being all that could be properly grown in that space. Last year it got a liberal supply of liquid manure in spring; this year it got nothing but clear water at first, and rain as it falls, and is doing as well as last year, and vigorous enough for a house containing so many vines.

The ends of my present vinery are not glazed, having only a small window and door on each end. Were I to erect a new one, I would have the ends glazed to within three feet of the ground, and would have openings in the front wall to allow the roots of the front row of vines to extend into a prepared border outside.

For those who may wish to try this plan, I would recommend the following varieties as being the most successful with me, and of the finest quality:

1, Black Hamburg; 2, Muscat Hamburg; 3, Champion Hamburg; 4, Lady Downes; 5, Golden Hamburg; 6, Bowood Muscat; 7, Buckland Sweet Water; 8, General de la Marmora.

The first four are black or purple grapes, and the last four white grapes. No. 1 is far the most profitable and best of the blacks, and Nos. 6 and 7 of the whites. Nos. 4 and 6 are the better for artificial impregnation, as they do not set the fruit very well.

The principal trouble in following this plan, more than is required in out-door culture of the native, is the necessity of thinning the grapes on the bunches to about one-half when about one-quarter grown, to give room to the rest of the berries to swell.

Warning!

To Farmers, Fruit Growers and Others.

THE Geneva, N. Y., Horticultural Society does not usually express opinion upon matters connected with the business of tree-selling, but a fraud of such an extensive and bare-faced nature, and so disastrously affecting the interests of both buyers and sellers, has been brought to its notice, that the Society deems it a simple matter of duty to expose it and put the public on their guard by making the following statement:

For several years various gangs of men, representing themselves to be from Troy, Ohio, have canvassed different portions of the country, with samples of fruit in glass jars, and large numbers of people have become victims of their fraudulent practices.

These men do not grow the stock themselves, nor is it all grown in Ohio, as represented, but is packed in different parts of the country, wherever they can buy the cheapest trees. One of these gangs that has been operating during the past season in Central New York and New England, is now engaged in packing in this place.

The fruit shown by them in their glass jars is seldom of the variety represented by them, but consists of the largest specimens they can obtain, is named arbitrarily to suit the purpose, even when it is real, but is often of WAX, and being in liquid, the deception is not perceived by the purchaser.

Again, the stock is packed in a way well calculated to screen it from observation, being baled the entire length in rye straw, and is shipped hundreds of miles without being boxed to protect it, and without moss sufficient to keep the roots moist. Three days of such treatment cannot fail to injure the hardiest trees, while this stock is often necessarily on the road for weeks.

That this fraud *may be* entirely successful, customers are warned by these impostors *not to open their trees, as exposure would injure them!* And the victim is thus usually home before he discovers the fraud.

In this manner the most worthless stock is packed, and often, by a method known as "shingling," the bales are made to appear several feet longer than the trees really are.

They pay no attention in packing to have the varieties labeled correctly, but mix different fruits, and different varieties of the same fruit promiscuously, and label from this mixture to suit the orders, regardless of the selection of the customers.

The prices obtained by these parties are simply fabulous, and often for plants that do not exist. For instance, they sell a strawberry plant which they call "The Alpine Tree Strawberry" (a "*thing*" unknown to nurserymen), at an enormous price, and deliver a plant of some common variety.

Every artifice of the practical swindler is employed by these men. They readily coin new names and new varieties, and can on very short notice fill any order for anything, if a little opportunity for concealment be given them.

Before you receive the stock, oblige the delivering agent to open the straw package (don't do it yourself), so that you can inspect the stock and see if their "famous tree strawberry" has not every appearance of being a common variety, and if their high-priced plums and cherries are not the poorest apologies for trees, while the whole is dry and worthless. Their apples and pears are frequently of decent quality, but with the varieties so mixed as to be worthless to the planter, even if in fair condition.

While the buyer may not be able to detect mixed stock as readily as a nurseryman, he can easily see the appearance between a Bald-

win and a Red Astrachan apple, or a Bartlett and a Clapp pear, and if both look alike, may be sure there is something wrong.

Persons who have bought nursery stock answering the description above given, will be justified in refusing to accept it, and they need fear no attempt to collect payment by law. Ample evidence of the truth of this statement will be cheerfully furnished by this Society. The reader is also referred to *any* reputable nurseryman, dealer or horticulturist in Geneva, Rochester or elsewhere.

Geneva, N. Y., Oct. 7, 1875.

Fruits and Flowers of Portugal.

THEY possess, indeed, many fine orchards of fruit trees, and groves of oranges and lemons, of olives and mulberries, and extensive forests of pine, chestnut, and cork trees; but they are far behind the Germans in forestal science; and the French, the masters of us all, in pomology. The Portuguese oranges grown in the interior, are as large and good as those from St. Michael's, but the oranges which come from the seaboard districts—the only ones ever exported to Great Britain—are poor in quality, for which I can give no reason except bad cultivation, seeing that the best oranges in many other countries grow within the reach of the sea breezes. The olives of Portugal—an important food of the people, are gathered riper than in Spain, France, or Italy, and are small and dark colored. They are probably more wholesome, and, in my opinion, far better to eat than the olives of any other country; so good, indeed, and so cheap, that it is a wonder they are not brought to this country in the place of the hard and half-ripe and expensive olives of France. The oil obtained from them is generally badly made, but when purified, it is probably quite as good, though by no means as salable, as the fine oils of Italy.

The climate of Portugal appears to be identical, in many respects, with that of Japan; and many Japanese shrubs and flowers, which dwindle and fail in the open air in France and England, grow magnificently in Portugal. Chief among them is the camellia, brought, it is said, about ninety years ago from Japan, and often seen in Portugal of the size of a full-grown apple-tree. The camellia seems to require a rather damp climate and perhaps a granite soil, for the tree is a weakling in the dry air of Lisbon, but thrives close by at Cintra, and still better at Oporto, where many new and beautiful varieties are grown—among others, the sweet-scented kind, of whose existence no English gardener or botanist to whom I have spoken seems to be aware. Lovely as the flowers of the camellia are singly, the tree itself, in full bloom, is by no means an attractive sight. A camellia tree with a thousand flowers on it might be supposed, with its compact growth, its shiny leaves of rich green, to be an exquisitely beautiful object, but it is nothing of the sort. The flowers as they begin to fade, get to be of a dingy brown, and hang a long time on the tree, and a camellia-tree has by far the largest proportion of its flowers withered and ugly. As a flowering shrub, the camellia is not comparable to the poinsettia, which blossoms to perfection in the Algarve provinces, with its mass of intense scarlet bloom, looking like a richly colored silken drapery hung on the branches of the tree, or to the white datura. A datura shrub in full bloom, with its thousands of pendent flower-bells reflected in a pool of water, is not soon to be forgotten.

The Wild Goose Plum.

A FEW young trees on our grounds fruited for the first time this year. Although of quite moderate quality, this plum, we think, is destined to become extensively planted. In appearance and texture it considerably resembles the old Cherry plum, being bright red, fibrous and juicy. The specimens generally measured an inch or more in the shortest diameter, and about an inch and a third or an inch and a half long. The time of ripening was the first and second week in August. Specimens picked while yet hard, and with a light shade of red, and placed in a drawer, ripened in a few days into a brilliant red.

From this we infer that they would be admirably adapted to distant conveyance to market. Many of the plums were stung by the curculio, but the thick skin and the character of the flesh prevented the larvæ from doing much or any harm, and the fruit was invariably good and fair. We think this plum might be extensively planted for market, even in the North, as it will grow vigorously on soils not adapted to the common varieties of the plum, and it is not affected by the black knot, and we question if the curculio, with a moderate amount of attention, will ever do it much injury. It is hard to tell beforehand, however, what these insects may undertake or accomplish.—*Country Gentleman.*

An Improved Fruit Picker.

A LONG-HANDLED fruit picker is a very desirable accompaniment of a fruit garden, for many of our finest specimens grow where it is difficult to reach them by means of a ladder. But I have found one serious objection to all the several varieties of pickers that I have seen. They do not furnish any means of conveying the fruit to the basket, except by lowering the instrument and taking out of the pocket by hand each specimen of fruit, as you gather it. But this requires considerable time, besides being not a little inconvenient.

To avoid these objections, I have constructed a picker of tin, but without any bottom. Near the lower edge it has several small holes, so that a cloth conductor may be attached by sewing. This conductor is as long as the handle. When a fruit is picked, it slides down the cloth into the hand of an assistant, who at once removes it uninjured to the basket. Or the lower end of the conductor may be held by one of the hands that holds the handle. In this way a whole tree can be picked without once lowering the implement to remove the fruit.

Reading, Mass. W. H. W.

The Mammoth Grape Vine.—The famous grape vine of Monticello, near Santa Barbara, arrived last Thursday by steamer Mohongo, packed in seven boxes, for shipment to the Philadelphia Centennial exhibition, where it is to be set up, with limbs attached in their natural position, as it stood for over half a century. This is the largest grape vine in the world. Its enormous proportions and unequaled fruitage have made its fame world-wide. The body of the vine is over 5½ feet circumference; its foliage covered over 10,000 square feet; it has borne six tons of grapes annually; its age is from 60 to 100 years. Eight feet from the ground it branches into 20 large limbs, one of which is 27 inches in circumference. This limb is the exact size of the body of the queen's vine in Hampton Court, England, which is the largest and most celebrated vine in Europe.—*San Francisco (Cal.) Bulletin.*

Peaches in China.—Some varieties of the peach here grow to the height of forty to fifty feet, with fruit of great size. Marco Polo saw a peach in the district of Chang-chew that weighed two pounds. In general, the larger sorts are considered to be of inferior flavor, although some peaches in the Emperor's district are said to be as exquisite and meltingly delicious as the best European. The gardeners have the secret art of preserving the fruit gathered in October until January, as nice in flesh and flavor, and as smooth as in the fresh state. It should be noted that in China peaches are budded upon stocks raised from seeds or pits of the choicest varieties. The flat variety flowers in autumn, ripens very early, and with California excess of winter sun would do well.—Dr. A. KELLOGG *in Horticulturist.*

THE report of the Committee on Fruits of the Massachusetts Horticultural Society for 1875 says that Robert Manning placed upon the tables of the Society a dish containing two dozen orange pears from a tree belonging to Captain Charles A. Allen, of Salem, and that the tree is two hundred and thirty years old. It bore three bushels in 1874 and eight and a half bushels in 1873.

Window Gardening.

Plants for Sunless Rooms.

BY ANNE G. HALE.

IT was once the custom in this country to face all buildings toward the south, so that "keeping rooms," as they were styled—the most frequented apartments of dwelling houses, especially—might be warmed and cheered by the noonday sun. This was an important consideration in those early days, when we had not arrived at our modern inventions for producing heat and light. Many of these houses are still remaining, here and there, in isolated spots in rural districts, and, clumsy and awkward as their architecture may be, the rejoicing sunshine enters the quaint old windows and glorifies the low rooms, filling them with comfort and cheerfulness. At the present time the case is rare, where, in order to bring sunshine to parlor and sleeping rooms, "the front door opens into the back yard," as has been said, facetiously, of those old fashioned farm houses.

No doubt the average health—might I not also add *content* and *happiness*—of our people would be higher if more attention were paid to the admission of sunshine to our homes, especially to those apartments that are occupied daily. Yet in the location of buildings the entrance of this great blessing is set aside for the consideration of other privileges, such as convenience of access, contiguity of desirable premises, and the like. Unfortunately the larger part of the community have no voice in the planning or arrangement of the houses they occupy. Hence in our cities and crowded towns there are many homes where sunshine never enters. And these are elegant structures, "pleasantly located and with all modern improvements," as the advertisements assert. Those who live in them make the best of circumstances, and often find there a pleasant residence; yet cannot refrain from an envious wish occasionally, when the windows of their neighbors on the opposite side of the street are glistening in the sunlight and all aglow with merry faces and bright blossoms, as they frequently are during the winter. I recall to mind a city avenue along which I passed a few years since. The fine residences on the sunny side of this street were made still more beautiful by the display of flowering plants at their windows, while the equally fine mansions on the other and shady side looked cold and pallid, though draperies, "stiff with lavish costliness," depended from every cornice. In all that long line of handsome houses, so fine yet so dreary, the only redeeming point—and that seemed pitiful, from the yearnings after brightness and bloom which it must have typified—was a vase of dingy autumn leaves and dried grey grasses standing at one casement. What a voiceless plea that vase of poor faded and fading loveliness sent up for greenness and living, growing beauty! I shall never forget it.

Sunshine, it is well known, is requisite for the healthful growth of most vegetable matter, while the development of the blossom and the depth and purity of its hues depend largely upon this wonderful agent of life and beauty. But there are plants not wholly indebted to the sun for their charms, which, by skillful management, will themselves "make sunshine in a shady place." In works treating of the in-door culture of plants little is said of these specifically, and many of them, greatly to the disappointment of their owners, languish and die in the heat and glare of sunlight. Persons having a northern frontage will find these plants very desirable for their sunless windows. Among them are many beautiful vines and lovely ferns, several charming Alpine plants, a number of our early native flowers, and also some naturalized varieties of arborescent growth, together with a few bulbs whose blossoms never court the sun. From these, handsome window gardens may be arranged that will reward all care bestowed upon them. And the vines should have attention first, particularly the ivies, for they need only good soil, prudent watering, moderate heat and light to flourish well.

Hedera helix, the English ivy, is generally supposed to be too tender to survive. New

England winters out of doors, and those who rear it for summer decoration of the piazza or balcony can use it for the adornment of their shadiest rooms through the winter. (But it has been found that these ivies placed at a northern exposure, where the sun's rays never come, will be uninjured by the severest weather, while those that have been subjected to the alternations of sunshine by day and frost by night have perished.)

To ensure the rapid growth of ivies within doors strong stimulants are needed, so it is well to prepare a fertilizer for winter use. For this purpose, in October or November, get a tight barrel or cask and put in it half a bushel of small charcoal and the same quantity of barnyard or stable litter, then fill the barrel with water. Draw from this at each watering of ivies sufficient to color the water slightly. Don't over water them—give them drink only when the soil looks dry. Remember that water evaporates much more slowly in shade than in sun, and plants thus situated require less moisture than is usually given them; after a few days' watchfulness you will know how much they need.

Some persons consider the English ivy a sombre and gloomy plant, because of the dark hues of its foliage, and its lack of blossoms in our climate. To enliven its appearance leafless sprays of the climbing bitter-sweet, *Celastrus scandens*, bearing scarlet and orange seed vessels resembling flowers, may be so entwined as to seem a portion of the same. It thus makes a brilliant show about a window or along the walls of a room. A rustic basket for a window or bracket in which a pot of growing ivy is set, together with small vases of pressed autumn leaves, or with boughs of black alder berries, or bitter-sweet, has all the effect of a vine yielding bright flowers and fruit. The more delicate green of the Irish and of the German ivy set in a basket decorated with *Tillandsia usneoides* of its natural color—pearly gray—is a very lovely ornament for a shady window. The dry Tillandsia (it is the drooping southern moss) can be procured at slight expense, and remains handsome several years. The ivy will flourish better than if in the sun, and merrily send its young shoots, as in frolic, among and through the slender, pendulous, frost-like leaves of the moss.

The Coliseum ivy, with its neat foliage and pretty blossoms of white and pale lilac, loves a shady location and a cool temperature. A hanging pot of this will do well at a north window. Any of the Tradescantias will grow luxuriantly in a sunless room. *T. zebrina* is an elegant plant for a bracket or a pillar in some shady nook. It needs a liberal supply of water. Only give it light and air and daily watering, after it is once established in a soil of sandy loam, and its rapid growth astonishes all beholders. The sweet potato, *Batatus edulis*, may be grown in water, and thus furnishes a beautiful vine for shady rooms. A hyacinth glass, or a narrow necked vase, filled with water, in which about half of the potato is submerged is the proper mode of rearing this vine. If the potato rests on the bottom of the vase there is no space for the silvery, fibrous rootlets through which the foliage draws sustenance from the water. It needs light and warmth, but not sunshine, to perfect its bright green leaves, which grow on long sprays that climb rapidly along cords, or droop without assistance around pictures. A bit of charcoal in the vase will keep the water pure, and care must be taken that the bulb is half under water at all times.

Ferns, as every one knows, who has attempted their culture, cannot endure the sunshine; so this special order of plants is eminently fitted for sunless rooms. A glass case to enclose the ferns from dust and at the same time to furnish them with a humid atmosphere, is the best arrangement. This, too, is the easiest way of managing them, for the moisture thrown off by the fern-fronds is continually returning again to the soil as it is condensed by the glass, so that when a fernery is once set in order and well watered it needs no attention, except the admission of air occasionally, and this only when the air of the room is of the same temperature as that within the glass. The florists are always ready to stock a fernery with exotics. But besides

these there are many beautiful native species that thrive within doors. And also other wild plants, that flourish in a shady, damp situation. Among the ferns, *Woodwardia*, *Doodia*, *Adaintum*, *Pteris*, *Asplenium* and *Cystopteris* will give the best satisfaction. The best soil for ferns is leaf mould and sand of equal portions lightly mixed, and then the same quantity of crumbled peat added and mixed therewith. There are many Lycopodiums, which are fit companions for the ferns. And the lovely *Mitchella repens*, the partridge vine, with its neat deep green leaves and scarlet berries; the creeping snow-berry, *Chiogenes hispidula*,—sometimes called boxberry from the resemblance of its foliage to that of the garden box,—with snow white berries; the pretty golden thread, *Coptis trifolia*, are all suitable vines to accompany ferns, either under a glass or in a hanging basket. With these may be associated the pitcher plant, *Sarracenia purpurea*, with its curious pitcher-shaped leaves, usually half filled with water; the rattlesnake plantain, *Goodyera pubescens*, with its blotched and mottled leaves; and the moccason flower, *Cypripedium spectabile*, with its handsome leaves and showy white and crimson flowers. Also the fragrant ladies' tresses, *Spiranthes cernua*, whose spike of creamy flowerets resembles those of the lily of the valley.

In "*Window Gardening*," Mr. H. T. Williams gives a very interesting chapter on Alpine plants and their culture. Many of these are well suited to the shady location of a northern window. Our saxifrage, sedum and sempervivum may be classed among these. Also the earliest of our spring flowers, hepaticas, anemones, sanguinarias and potentillas; as well as the lovely English forget-me-not, and our own native species, *Myosotis laxa;* the primulas, and the Chinese pinks, *Dianthus chinensis;* together with the daisies, *Bellis perennis*, the well known English daisy, and *Aster alpinus*, the blue Alpine daisy. Either in separate pots, or arranged in groups in boxes fitted to the windows, with light, air and moderate heat these need no direct sunshine. Good garden loam is the soil for them. Water them with the fertilizer prepared for ivies, and in the same manner.

Of woody plants that will thrive in a sunless window may be mentioned the myrtle, hibiscus, daphne, and camellias. These all need a soil composed of equal parts sandy loam and leaf mould. They need a moderate supply of water, except during their season of bloom, then water freely; but be careful that the soil is never stiff or heavy with moisture. The thick, glossy leaves and stems of these plants should be frequently sponged with weak soapsuds to keep them clear of dust and insects. For the culture of the camellia, amateurs should consult "*Window Gardening.*" If the rules there laid down are strictly followed there will be no complaint of unhealthy plants.

The lily of the valley, the snowdrop and the crocus can all be brought to perfection in a sunless window. Plant the bulbs singly, or group the three together in flat dishes or baskets of sandy loam. Keep them in a warm dark place till signs of growth appear, then bring them to the light, and water as they have need.

With these various plants to choose from, no sunless window need be without a growth of greenness and beauty. And by the addition of bouquets and garlands of pressed ferns and vines, and the more gaily colored leaves,—which may be rifled from bush or tree during the autumn months, and their bright hues made permanent,—or with dried everlasting flowers, gathered in their summer loveliness from field and garden, the shadiest apartment may be made a bower of bloom.

Begonias for Bloom.

BY C. W. HALL.

MANY articles have been written, in the leading Horticultural periodicals, in praise and of the treatment of most of our favorite greenhouse flowers, but little has been said of the beautiful, graceful, flowering class of Begonias; I term them flowering class, to distinguish them from those grown for their beautiful foliage; both kinds are familiar to most amateurs and gardeners. In my esti-

mation, the ever-blooming Begonia, as it really should be termed, stands pre-eminent among greenhouse or window plants, on account of its easy culture and adaptability to any temperature, although semi-exotic, from 45 to 85 degrees Far.; but it thrives best at about 55 degrees. I will mention a few varieties in which I have become particularly interested; also an approved method of cultivation. First on the list is *B. semperflorens Sandersii*, introduced by Mr. Saunders, of Washington, and undoubtedly one of the best acquisitions to modern floriculture; is of very free growth, and from a cutting up is never without its scarlet, wax-like flowers, ready to burst in bloom, when they obtain a bright pink. I have one plant in a sixteen-inch pot which has had never less than fifty pendant full flower stems, at one time, for the past twelve months. This variety does splendidly out-doors, planted in rockwork, and exposed to the full rays of the sun, but must be well watered.

B. Hybrida multiflora, an erect, robust grower, with delicate pink flowers hanging from a thread-like stem, very choice and showy, and by good treatment and liberal pot-room is ever blooming.

B. fuchsioides, a beautiful erect grower, with scarlet bloom, somewhat similar in shape to *B. multiflora*, but not quite so free flowering.

B. Alba loccenia, a stout dwarf growing variety with white bloom.

B. Glaucophyllum scandens is rather a new variety of good habit and fine scarlet flowers.

B. Weltoniensis, a very beautiful pink variety, which bloom freely from May to Christmas; should not be out of any greenhouse collection, although like many other varieties needs some rest. There are numerous others very beautiful; several varieties are bulbous-rooted, and ordinarily treated only bloom for a few weeks; but if the bulbs are started in succession, as any other bulbs may be,—for instance, Hyacinths, etc.,—a constant bloom can be obtained without comparatively any trouble. As a window plant, the Begonia stands second to none, as it adapts itself without inconvenience to sunshine or shade. In midsummer they seem to do best in an eastern aspect, but will also do well exposed to the full rays of the meridian sun.

The Begonia likes a rich, rather light soil. Say two parts good loam, one part rotten manure, one-half part sand, one-half part leaf soil.

Occasional watering with liquid manure is beneficial when they have filled the pot with roots. I favor liberal pot-room and thorough drainage.

All the leading varieties can be purchased of the Baltimore florists.

Window Gardening.—A *Tribune* correspondent speaks the following good word for Cactus: The majority of our ladies who are fond of plant culture, and who are not blessed with sufficient means to own a little greenhouse, are looking around at this season of the year for a set of plants that will not require too much attention, that will take care of themselves to a certain extent; and the Cactus is just the plant to meet the case. I am not recommending this formal class of plants with the idea that they should be placed in a straight row along the window sill, but that out of the great diversity of form, regular, eccentric, grotesque or unique, as the case may be, we can arrange one of the most attractive sights to be met with during winter. A shallow box, ornamented to suit the taste of the owner, should cover the sill nicely, in which may be placed a miniature rockery (crystallized quartz looks well), the tallest point being in the centre. Place, for instance, a good plant of *Epiphyllum*, grafted on a stem, as a prominent object, or, if preferred, select a variegated Agave for the place; around this arrange the many interesting forms of Alœ, Cactus, etc., with trailing succulents interspersed, so as to impart a natural air of fitness to the work. On either side of the window frame may be placed brackets sustaining other forms, and from the top may hang a basket of *Othonna*, with its pleasing bright green, fleshy leaves and yellow flowers. The idea was suggested by noticing just such an arrangement in the possession of a friend, and my desire is, that others may see beauties as well in this neglected class of plants.

Editor's Portfolio.

Rivina Humilis.

This is one of the most useful and effective plants which we have for table decoration; and, by growing a few plants of it in succession, it may be had in good condition all the year round. Plants that bear berries are always prized for table decoration, as they associate better with the surroundings than do plants that bear bloom only. This has the double recommendation of bearing both fruit and flowers at the same time, and in the greatest profusion, even in the case of small plants. Unfortunately this plant has one drawback, and that is, after the berries attain a certain degree of ripeness they drop off a little too freely. For table decoration perhaps the most pleasing and effective are dwarf standards, with fine, clean stems of a foot or so high, as in this way they show off their drooping bunches of rich-colored fruit to the best advantage.

Plants raised now, either from seed or cuttings, will attain a sufficient size for decorative purposes next autumn and winter; and, if required large for summer display, by means of a shift or two they may be grown to almost any dimensions. They are so easily and quickly raised from seed that it is scarcely worth while to propagate them in any other way. The seed should be sown in peat or finely-sifted leaf mold, and placed in heat to vegetate. As soon as large enough to handle the young plants should be potted off in small pots, and be replaced in moist heat to give them a start; as growth procceds all the lateral shoots should be pinched out until the plant attains sufficient height to form the stem, when the top may be stopped in like manner, leaving sufficient buds to break so as to form the head. In nipping out the laterals care must be taken not to injure the main leaves, or it will weaken the plant. As soon as the heads break fairly into growth the plants may receive their final shift into six or eight-inch pots, according to the size of the vases intended to receive them. They should then be placed in light, airy positions to induce them to set plenty of fruit, which they generally do in a very free manner. During autumn and winter it will be necessary to keep them in a cool stove or intermediate house, in a temperature ranging from 50 to 60 degrees. Should the heads become too large at any time, they may be cut back or thinned out to any extent, as they soon break freely into growth that blooms and fruits in quick succession.—*Garden.*

Scenery of Madagascar.

The following extract from a letter addressed to a relative residing in the neighborhood of Edinburgh, by a lady who has accompanied her husband on a journey to Antananarivo, the capital of Madagascar, is published in the Scotsman:

Four days' journey from the capital, Oct. 10, 1874. We took five days from Port Louis to Tamatave, and though the sea was calm the vessel rolled so dreadfully that we were much relieved to see the white breakers dashing over the coral reefs that surround Madagascar. We got into the harbor of Tamatave on the forenoon of the 30th of September. On reaching the shore we found palanquins waiting, and were carried off amid an admiring crowd. We stayed a week there, and called on the English consul, governor, etc. We left for the capital on Monday at midday, and now this is Sunday. Anything like the exquisite loveliness of the country you could hardly conceive. Our first four days' journey was as through a nobleman's model estate. The turf has all the appearance of a closely-shaven lawn, and the shrubs are beautiful—the arrangement of them something marvelous; and when one thinks that so they have grown, untouched by the finger of man, it is something more wonderful still. At one part the landscape had the appearance of an enormous park, with shrubs clumped here, there and everywhere, backed by palm trees, orange trees, bananas, and every imaginable kind of tropical vegetation. In a little we got into a wood—more exquisite still—where wild rasps grew in such abundance that I had to hold down my head for fear of the overhanging

branches catching my hat. Here the air was delightful, the murmur of a distant brook bringing coolness in the very sound; while beautiful birds, light blue and bright scarlet, hopped from tree to tree. Again, the path led by a lake of heavenly blue, surrounded to its edge by the most luxuriant of tropical vegetation. The next day we rowed in the native canoes for four hours up a river about half a mile broad. The canoes are simply trunks of trees hollowed out, so that if any one moves an inch over they go. I was carried in sitting in my palanquin, and carried out ditto. The rivers here, with their breadth, their depth, and the flowers and foliage on their banks, are magnificent. In every valley we came upon a lovely babbling brook, winding through overhanging trees, as the graceful bamboo, travelers' trees, and Orchids, with their wax-like blossoms. The bearers enjoy fording these streams, as it cools their feet.

Fire Blight in the Pear.

It is announced that Dr. Hunt, President of the Naturalists' Club of Philadelphia, has had fresh specimens before him, and has detected the fungus at work. It attacks the outer bark first, then works to the inner, and then penetrates the wood by its cellular portions, entirely destroying all as it proceeds. This accounts for the sudden death of the branch above the attacked point. Many of us have doubted whether a fungus could cause so sudden an appearance. Those who have before told us about the trouble being caused by a fungus, simply said it girdled the bark, but the practical experience of fruit growers has been that ringing does not immediately destroy the branch above. It checks the flow of sap and hastens the maturity of any fruit that may be on the branch. The leaves turn red sooner in the fall, but it is not until a year or so after that the branch dies. There is sap enough gets up through the wood, of a certain character, to keep some sort of life going on a little while. There is nothing sudden in the taking off. But in an attack of fire blight the branch, oftentimes several years old, dies at once, just as if it were cut from the tree. From Dr. Hunt's observations it would seem that it is, in effect, so cut away. The wood is destroyed, and no sap can get up either through wood or bark.

And the result is that what is known as the Saunders remedy will be still more popular. In those districts where fire blight threatens, washes that will destroy fungus spores will be more than ever in use.—*Maryland Farmer.*

Weather-Telling Plants.

Herr Hanneman, inspector of the botanical gardens at Proskau, Germany, has observed that several plants may be used as weather prophets. Here are some of his observations: *Convolvulus arvensis*, the common Bindweed, and *Anagallis arvensis*, the English Pimpernel, spread their leaves at the approach of warm weather, while the different species of clover contract them. *Stellaria media*, the Chickweed, at nine o'clock in the morning, if the weather is clear, straightens its flowers, spreads its leaves, and keeps awake until noon; if, however, there is rain in prospect, the plant droops, and its flowers do not open. If they open a little, the rain will be of short duration. The same with *Pimpinella saxifraga*. *Calendula pluvialis*, the Marigold, opens between six and seven in the morning, and keeps generally awake until four in the afternoon. In such cases the weather will be steady. If, on the other hand, it has not opened by seven o'clock in the morning, you may that day look for rain. *Sonchus arvensis* and *eloraccus*, the Hog thistles, indicate fine weather for to-morrow, if the head of the blossom closes for the night; rain, if it remains open. Again, rain is certain if *Hibiscus trionum*, the Bladder Ketmia, does not open its blossoms; if *Carduns acaulis*, the stemless thistles, close; if clover, and most allied kinds, drops its leaves. Also if *Lampiana communis*, the Nipple Wort, does not close its blossoms for the night; if *Darby varna*, the Whitlow grass, lets its leaves hang drooping; if *Galium verum* swells and exhales strongly; also if birches scent the air. *Anemone ranunculoides*, the Crowfoot Anemone, also tells the coming rain by closing its blossoms, while *Anemone nemorosa* carries

its flowers erect when the weather is fine, and drooping when overcast.

Ashes and Iron for Flowers.

The observation of practical and experimental gardeners seems to confirm the fact that, to procure brilliant colors in flowers, it is necessary to supply the soil with an abundance of ferrugenous constituents and silica. The latter supplies a material (says S. E. Todd, in one of his foreign exchanges) which is of vast importance in the production of that brilliancy of the petals, and the dark green luster of the leaves. Then, if potash be added, or the ground be dressed round about the growing flower with unleached wood ashes, an increased brilliancy will appear in every petal and leaf.

Any person who cultivates only a few flowers in pots, or on grassy lawns, or on spacious parterres, may readily satis y himself of the exceedingly useful part the foregoing materials play in the production of beautiful flowers. Even white flowers, or roses that have petals nearly white, will be greatly improved in brilliancy by providing iron, sand and unleached ashes for the roots of growing plants. Ferruginous material may be applied to the soil where flowers are growing, or where they are to grow, by procuring a supply of oxide of iron, in the form of dark-colored scales that fall from the heated bars of iron when the metal is hammered by the blacksmiths.

Iron turnings and iron filings, which may be obtained for a trifle at most machine shops, should be worked into the soil near flowers, and in a few years it will be perceived that all the minute fragments have been dissolved, thus furnishing the choicest material for painting the gayest colors of the flower garden.

When there is an excess of vegetable mold in a flower bed, and a deficiency of silica or sand, the flowers will never be so rich in color, nor so brilliant as they would be, were a liberal dressing of sand or sandy loam worked down into the bed, where the growing roots could reach it. If wood ashes can be obtained readily, let a dressing be spread over the surface of the ground, about half an inch deep, and raked in.

A dressing of quicklime will be found excellent for flowers of every description. It is also of eminent importance to improve the fertility of the soil where flowers are growing, in order to have mature, plump, ripe seed. Let the foregoing materials be spread around the flowers, and raked in at any convenient period of the year. When soil is prepared for flowers in pots, let some sand, some oxide of iron and ashes be mingled thoroughly with the leaf mold.—*Scientific American.*

Hyacinths in Winter.

Why is it that, as a general thing, persons are so unsuccessful in blooming bulbs in the winter? In nine cases out of ten the bulbs do not give the satisfaction they should. We think the mistake is, that they are forced into growth too suddenly.

A lady buys, say half a dozen choice bulbs. She does not care particularly to have a succession of bloom. If they flower moderately well, she will be perfectly satisfied. They are planted according to directions, and set away in the dark for six weeks. At the end of that time you may find them in the sun at the sitting room window. In a day or two, the points of green leaves seen near the surface will open with a little compact bunch of color in the centre, and there it will stay until it withers.

Perhaps out of the six bulbs three will throw up spikes of bloom. These will probably prove of the white or lavender varieties, which seem to be of freer habits than others.

Last winter we succeeded in growing as fine blooms of Hyacinths as we have ever seen, and with very little trouble. Late in December, after our fall stock of bulbs was disposed of, we found a dozen or more Hyacinths of various colors had been overlooked. To keep them from spoiling, they were hastily planted in four or five large pots, and these set away in an outbuilding, where they would be free from frost and have very little light. There they were left for three months, and nothing done except to water them occasionally. Expecting little or nothing from them, they were not noticed till leaf and flower stalk were both perfectly developed. The light had not been

sufficient to color the flowers, and they were all of a dirty pale green. The pots were now brought to the sitting room and placed in the full sunshine, and in a few hours each spike had assumed its natural tint. The effect was very beautiful. Not a bulb had failed—red, purple, yellow, blush and white were all large and perfect.—*Am. Garden.*

Orange Groves.

So far as we know, the largest orange groves in the world are now to be found in Louisiana.

The largest are those of Bradish Johnson and Effingham Lawrence, of Plaquemine parish, and that of Gard and Guthrie, of lower Lafourche; the last contains over 125 acres just coming into bearing. This is a new region, as the extensive orange groves have been confined to Plaquemines heretofore.

Small orchards are found in all lower Louisiana, but Dr. Gard was tempted to plant so extensively by witnessing the wonderful growth and productiveness of the trees on the lower Lafourche. He has one tree larger in circumference by eight inches than a flour barrel. This tree is over forty feet high, and is now over sixty years old. Its fruit will sell now, to be gathered when ripe, for fully one hundred dollars. For several years past it has produced an income of from fifty to seventy-five dollars a year. A tree in Cameron parish produced last year eight thousand marketable oranges, which brought one hundred and fifty dollars in gold.—*N. O. Picayune.*

A Beautiful Conservatory.

Within the past year or two Mr. E. S. Rand, Jr., has built at his residence, Glen Ridge, near Boston, a greenhouse and conservatory of superior beauty and taste. A committee of the Massachusetts Horticultural Society, in visiting it, not long since, made mention of some of the rare plants contained within it, and as the report is worth notice, we copy the most interesting portion:

The whole length of the greenhouse is about 135 feet, and its width twenty feet. It is divided into five compartments, namely: a rose-pit, forty-five feet by twenty; a conservatory, twenty-five feet by twelve; an orchid house twenty-five feet by twenty; and geranium and camellia houses, forty feet by twenty; the first and last named being at the extremes, leaving the orchid house and conservatory in the middle, where the heat is the greatest; a very neat and glazed potting-room being at the side of the conservatory, near the boiler. Good light and ventilation, so essential to orchids, are provided, and the experiment of ground glass, of which a portion of the roof is made, has proved entirely successful. The whole is heated by one of Zirngiebel's tubular boilers, running three rows of pipes on each side, which Mr. Rand reports to be both economical and efficient, giving all the warmth desired without difficulty. But, as the writer well knows that some other boilers have proved eminently satisfactory, he would not be understood to express any preference for the Zirngiebel.

The construction of the whole building is excellent. The benches are of galvanized iron wire netting; with iron supports and narrow iron side guards, also galvanized. A large water tank occupies the centre of the orchid house, with a walk around it. Here water lilies and other plants were in perfection, and the hanging baskets, cob-work, and orchid-blocks, above and around the visitor, and the curious air plants with a profusion of splendid blooms, some of delicious fragrance, presented a lively display for the season, many of the flowers continuing from four to six weeks in beauty. This house was at a temperature of seventy degrees and contained many of the most beautiful of the *Aerides*, *Lælias*, *Vandas*, *Oncidiums*, *Dendrobiums*, *Cattleyas*, and other orchids of fine blooming qualities—among them several plants of *Calanthe vestita*, both the red and the yellow-eyed varieties, which were very admirable, their drooping racemes of white flowers, against a background of ferns, producing a lovely effect. As these plants, unfortunately, lack foliage in their flowering periods, a good background becomes indispensable. The new hybrid, *Calanthe Veitchii*, was also in bloom, sending up stalks two feet high, with rich rosy flowers,

and plants of the *Lycaste Skinneri alba*, with their long arms full of white blooms, were objects of great interest.

Specimens of the *Limatodes rosea*, with flowers of different shades, from light pink to deepest rose, on different plants, were much admired. The *Odontoglossum grande* was showing a late spike of large yellow and orange blooms three inches in diameter. A splendid *Vanda tricolor* perfumed the house with its sweet odor, and a plant of *Ansellia Africana*, two feet in diameter, was loaded with bunches of curiously veined flowers, of purple, green, and yellow. The delicate and almost unrivalled *Cœlogyne cristata* showed large spikes of pure white blossoms with a crested yellow lip.

The *Oncidium papilio*, or West India Butterfly-plant, nearly always in bloom, was very marked, and particularly conspicuous for its insect-shaped flowers; and a large specimen of the *Phalænopsis amabilis*, or East India Butterfly-plant was in full bloom, with flowers three inches wide. The *Oncidium leucochilum*, a white-lipped beauty, was also admired for its rare delicacy.

The *Saccolabium violaceum* and *S. giganteum*, compact in growth, with pendent, evergreen foliage, sent from their tinted, shell-like cups, a delicious fragrance through the room; and the *Dendrobiums—chysotoxum*, *superbum*, *calceolaria* and *nobile*, attracted much notice by their splendid spikes of flowers. The *Vanda cœrulescens*, with its clear amethyst blue, also excited much interest. But the *Bletia Tankervilliæ* (or *Phaius grandifolius*) was, perhaps, the most striking feature of the house. Of these, there were several very large plants, full of flower stalks, many of them four feet high and studded with blooms,—some having twelve or fifteen stalks and making altogether a magnificent display. Rare *Cypripediums*, with their peculiar slippery flowers were very prominent; and Pitcher-plants (*Nepenthes*) hung from the roof, while the lovely *Thunbergia Harrisii* trailed in long festoons of rich lavender blooms, intertwined with the tasteful *Clerodendrom Thomsoniæ*.

Again, in the month of June, some of your committee visited the place and found all in order, having passed safely through the winter; though the orchids generally were not in such perfection as in their blooming season. The *Cattleya Mossiæ*, that magnificent orchid of La Guayra, both in the hall and hot-house, was in excellent condition and in full bloom, exciting great admiration; and in September the *Cattleya crispa* was also in flower. The *Aerides*, which are among the choicest, especially the species *odoratum*, *Fieldingii*, *Lobbii*, and *affine*, with racemes of red flowers, so rivalled each other that one could hardly decide between them. The *Stanhopeas*, with their curious, pendent flowers, presented a charming aspect, twenty-six varieties furnishing a succession.

The *Lælia Perrinii* was particularly observed; and the *Cœlogynes — largenaria*, *maculuta*, and *Wallichiana* were excellent. The blue water lilies had closed their flowers in the afternoon, but were evidently well supplied with them. The *Peristeria elata* (Dove Plant, or Holy Spirit) displayed its wonderful form, and the *Angræcum sesquipedale*, a still greater wonder, and which was in bloom in our winter visit, with its long honey tube, was quite a curiosity.

The Camellia and Geranium houses were in fine keeping, and the plants appeared to be free from insects, mould, or decay. The houses, though limited for room, were easily heated, lighted and operated. The writer, on two subsequent occasions, visited them, finding all in like order.

The Grapery of Mr. Rand was also visited as above, this house having also been entered for the prize. The building, which consists of one splendid room, 100 feet by twenty-five, is more ornamental than the greenhouse, having high, curvilinear sides and roof of glass, without artificial heat. It contains seventy-five vines, introduced through apertures in the foundation, and nourished by a rich outside border, twenty feet in width. These are finely trained under the glass, and nearly all of them showed a remarkable growth and fruitage for their age. The varieties are the Black Ham-

burgh, Muscat Hamburg, Golden Hamburg, Victoria, White Frontignan, Royal Chasselas, Royal Muscadine, West's St. Peters, and Chaptal. The Committee were delighted with the appearance of the vines and with the house generally, which was admirably built and highly finished, with every convenience of light, water, and ventilation.

A Gigantic Water-Lily.

Paul Marcoy, a French traveler, whose book of travels is full of interesting incidents, describes a curious plant he met with while descending the river Amazon. This plant was a gigantic water-lily belonging to the same family as the Victoria Regia.

"We entered," says he, "into my canoe, which, by order of the guide, coasted along the left bank to the entrance of a narrow inlet, up which we turned. Julio, to whom all the channels and all the lakes of the region were familiar, at once recognized the entrance to lake Nuña and asked of our guide what we were going to do there. 'To see the big flowers,' he replied. His words told me nothing of the family of the flowers, of their form or their color, and I was anxious to know whether for the flowers in question it was worth while to expose one's self to be devoured by mosquitoes, which as we advanced further into the canal were enveloping us in a cloud more and more dense.

"I had already been bitten by some thousands of these insects and had crushed half a hundred of them, when one of the men cried out, 'Here we are!' I stretched out my head. The canal was behind us; before us spread a sheet of water of so strange and wonderful an appearance that I was tempted to leap on the neck of the guide to thank him for having procured me such a spectacle. But I contented myself with expressing to him by a look and a smile the pleasure caused by the sight of his Lake Nuña.

"This lake, whose water black as ink reflected neither the color of the sky nor the rays of the sun, was about two leagues in circumference and was fringed by thick verdure. Its surface in some places was covered with water lilies with gigantic leaves of a brownish-green color, which contrasted with the ruddy wine-color of their turned-up borders. Among these leaves were blooming magnificent flowers whose petals, of a milky-white on the outside, were brightened inside with a dark-red tint, and assumed in the center a uniform tint of darkish-violet. On this splendid carpet sported a whole legion of spoon-bills and other aquatic birds which added to the striking character of the scene, and served as a scale to measure by the eye the leaves and flowers which these birds shook in walking, while the weight of their bodies was not sufficient to sink them.

"After having enjoyed the view of this brilliant sample of tropical vegetation, I was seized with the desire of possessing a specimen. My men pushed the canoe into this net-work of leaves and flowers, and with an axe I succeeded in detaching a flower and a bud from their stout stems which bristled with hairs three or four inches long. The leaves of the plant, anchored to the bottom of the water by thorny stems of the size of a ship's cable, resisted the combined efforts of my men, and I was compelled to cut one of them a few inches only below the surface. This leaf, perfectly smooth above, was divided underneath into a multitude of very regular pigeon-holes, whose lateral partitions bristling with prickles were one inch in depth.

"I passed nearly an hour, standing in the canoe, in examining this lake of black water and these white flowers, from which I could not withdraw my eyes. Then, after having made a sketch of them, I gave orders to return.

"On landing I caused the leaf of the water-lily to be placed on two poles and to be carried by two men to the encampment. One of the men went before and with a saber opened a way for it through the reeds. My vegetable prize arrived without hindrance at its destination.

"The leaf, still damp, weighed thirteen pounds and a half. Its circumference was twenty-four feet nine inches; the flower measured four feet two inches in circumference, and its outer petals were nine inches long."

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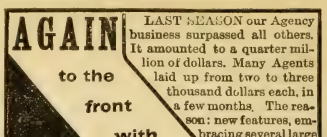
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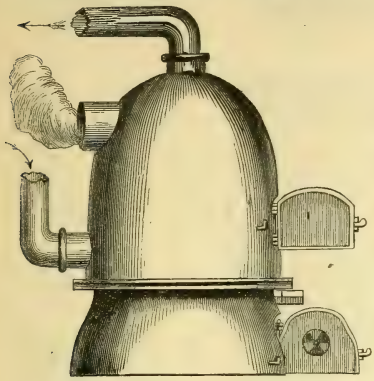


Fig. 1

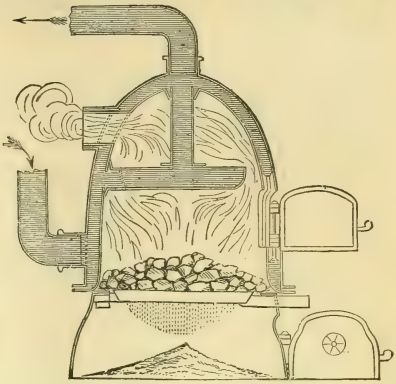


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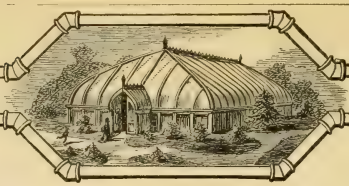
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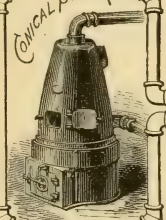


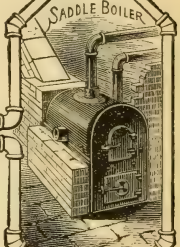
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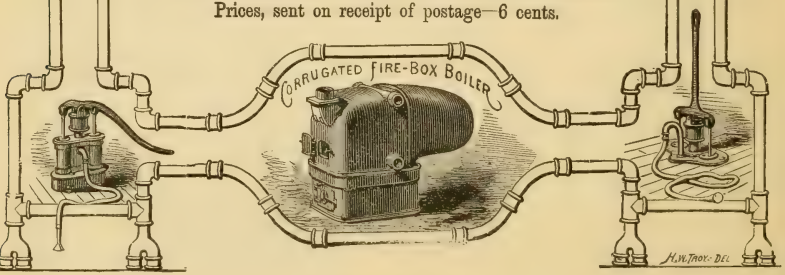
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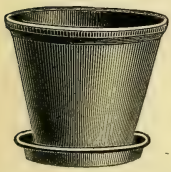
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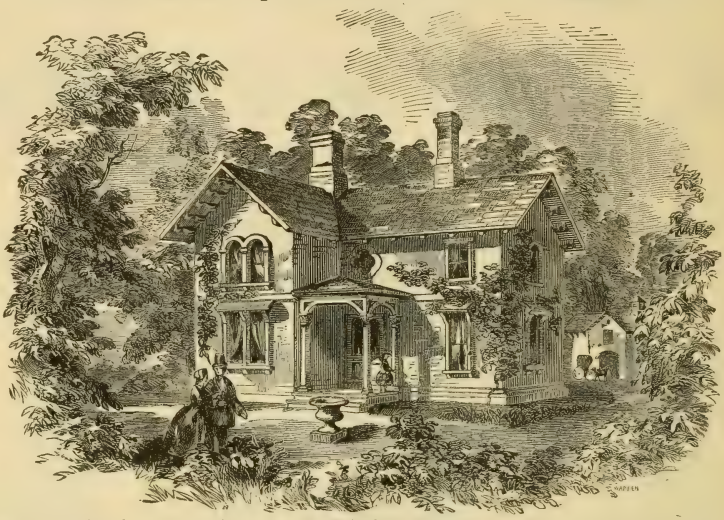
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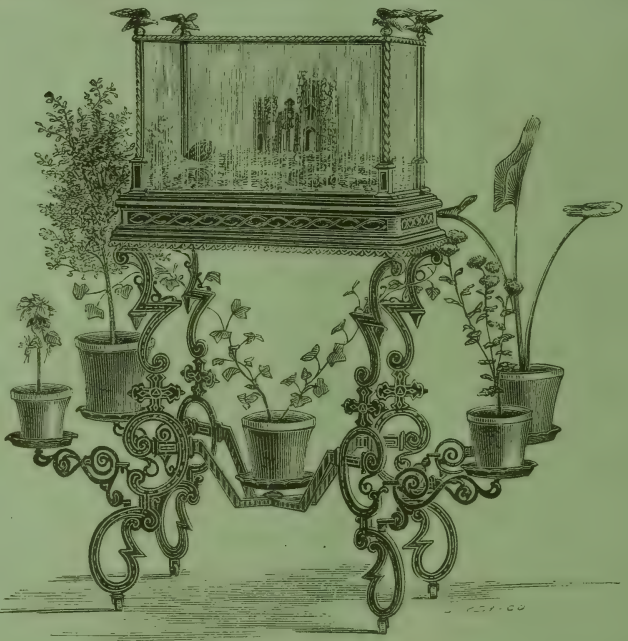
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THE HORTICULTURIST



A JOURNAL OF RURAL LIFE, LITERATURE, ART AND TASTE.



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JOSIAH HOOPES. ANDREW S. FULLER, JAMES TAPLIN.

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JOSIAH HOOPES, ANDREW S. FULLER, JAMES TAPLIN.

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Special Contributions.

Ornamental Trees.

BY JOSIAH HOOPES.

As every planting season approaches, the all-important topic among owners of new places is, what shall we plant? At first thought, this question seems to be of easy solution; but the more we inquire into the details of landscape art, the more difficult it becomes to settle upon the proper list of trees embracing all the requisites of beauty, and yet be adapted to our especial situation. To name a list that would suit all our readers, residing thousands of miles apart, would be simply preposterous; but to suggest a happy medium, one combining very many excellencies, and reliable generally in the Middle States, is not so difficult. We therefore purpose, in the following selections, to place before our tree planters such species and varieties as are generally admired and are satisfactory, so that any one can choose according to his fancy, and what, in his own judgment, would be best adapted to his particular location.

Among large-sized deciduous trees, we would select the following twelve as unexceptionable, viz.: Acer platanoides (Norway Maple), A. saccharinum (Sugar Maple), Æsculus Hippocastanum (common Horse Chestnut), Fagus sylvatica (common European Beech), or either of its two beautiful varieties, purpurea and pendula; Larix Europea (European Larch), Liquidamber styraciflua (Sweet Gum), Liriodendron tulipifera (Tulip Tree), Magnolia acuminata (Cucumber Tree), Nyssa multiflora (Sour Gum), Quercus alba (White Oak), Taxodium distichum (Bald or Deciduous Cypress), and Tilia Americana (American Linden). It will be noticed that we have omitted several excellent species that succeed in many sections of the country; but we are forced to draw the line somewhere, and therefore such valuable trees as the American Elm, etc., have been disregarded, but all for some satisfactory reason. For instance, the foliage of the Elm is frequently destroyed by insects; the *burs* of the common Chestnut are very annoying on the lawn, etc.

We would suggest as twelve excellent medium-sized deciduous trees, the following, viz.:

Acer campestre (Cork-barked or English Maple), A. rubrum (Red or Scarlet Maple), Betula alba (White Birch), Fagus sylvatica var. heterophylla (Fern-leaved Beech), Halesia tetraptera (Snow-drop Tree), Magnolia umbrella (tripetela) (Umbrella Tree), M. conspicua (Yulan Magnolia), M. Soulangiana (Soulange's Purple Magnolia), Prunus padus (European Bird Cherry), Salisburia adiantifolia (Japan Ginkgo), Quercus Phellos (Willow Oak), and Tilia alba (White-leaved Linden). The Mountain Ash and common Ash are omitted on account of the attacks of the "borer;" the Thorns, because they are liable to blight; Magnolia macrophylla, as it is not reliable much further north than Philadelphia, etc.

For twelve small-sized deciduous trees we name Asimina triloba (Papaw), Cercis Canadensis (American Judas Tree), Chionanthus Virginica (White Fringe Tree), Cladrastis tinctoria (syn. Virgilia lutea) (Yellow Wood), Cytisus Laburnum (Golden Chain), Magnolia cordata (Heart-leaved Magnolia), M. glauca (Sweet Bay), M. Lennei (Red-flowering Magnolia), Rhus cotinus (Purple Mist Tree), Cornus florida (Large White-flowering Dogwood), Tamarix tetandra (Slender Tamarisk), and Viburnum opulus (Cranberry Tree), or, if preferred, var. sterilis (Snowball).

In Conifers, from medium to large size, we should designate as very valuable the following twelve reliable kinds, viz.: Abies alba (White Spruce), A. excelsa (Norway Spruce), A. obovata (or A. orientalis, very similar) (Obovate-coned Spruce), A. Canadensis (Hemlock Spruce), A. Nordmanniana (Nordmann's Fir), A. Pichta (Siberian Fir), Pinus Austriaca (Austrian Pine), P. cembra (Swiss Stone Pine), P. strobus (White Pine), Retinispora obtusa (Obtuse-leaved Retinispora), Thuja occidentalis (American Arbor Vitæ), and the var. Siberica (Siberian Arbor Vitæ).

Among small-sized Conifers, where the varieties are so numerous, it becomes a difficult task to select a list without doing injustice to a large number of excellent kinds; but the following will all give entire satisfaction in the majority of situations: Abies excelsa Gregoryana (Gregory's Dwarf Spruce), A. Fraseri Hudsonica (Hudson Bay Fir), Biota orientalis elegantissima (Rollinson's Golden Arbor Vitæ), Juniperus communis Alpina (Canadensis) (Canadian Trailing Juniper), Pinus mugho (Dwarf Mugho Pine), Podocarpus Japonica (Japan Podocarpus), Retinispora plumosa (Plume-like Retinispora, var. Aurea, Golden Retinispora), Taxus adpressa (Japan Yew), T. baccata, var. Canadensis (American Yew), Thuja occidentalis globosa (Globe-headed Arbor Vitæ), and var. Hoveyi (Hovey's Golden Arbor Vitæ).

Having settled upon our list of trees to plant, the next question that arises is, how to perform the operation so that the best results may be obtained. Experienced planters entertain different opinions upon various points, but all mostly agree upon the essential features, so that a few general hints to the uninitiated may perhaps meet the views of both teachers and pupils. Dig the holes large in diameter, but not in depth, as we should desire to encourage the feeding roots to grow near the surface, whilst the long tap-roots will find their way down fast enough. Never allow the tree to be exposed to high winds, nor to the hot sun. Our plan is to keep the roots covered with old carpet or matting until set in its position; sprinkling with water occasionally at such times is highly beneficial.

Soil taken from the excavation may not be suitable for hastening root formation; therefore always have a supply of old fibrous loam, taken from a fence row, where the accumulation of decayed vegetable matter has been going on for years. This makes an unexciteable, yet grateful food for plants. Do not, upon any account, hurry the job, but throw, or rather sprinkle the soil among the roots, taking care to work it in well with the best of all tools for this purpose—the hands, and pour in a little water as the work progresses.

The oft-quoted maxim of the lamented Downing, that "many persons plant a tree as they would a post," contains a slight taste of good advice beneath the exterior of irony, as now-a-days some of our most successful cultivators believe that ramming the soil around a

newly planted tree is a great point gained, and that a tree so managed stands a greater chance of living than when set in the ordinary way, with merely loose soil around its roots. After planting, especially if in autumn, it must be staked and mulched. Various methods have been suggested at different times for staking trees, but we have never observed any plan that pleased us better than driving the stake close alongside of the body, at an angle of 45°, and fastening them together by means of a straw band to prevent chafing. Never neglect to mulch the surface of the soil for a short distance from the trunk of the tree. Mice will occasionally find a harbor here and eat the bark; but if a little coal oil or some other offensive matter be rubbed on the bark, these enemies will be driven off. In conclusion, do not delay the planting operation too long, whether in autumn or spring, as early in the season will generally give a larger percentage of living plants.

Notes on Some of the New Conifers

In the Neighborhood of Boston.

BY PROF. C. S. SARGENT.

AS a supplement to Mr. Hoopes' article in the October number of THE HORTICULTURIST, in which he gives his experience with some of the newer Conifers, it may be interesting to note the condition in which we, in Eastern Massachusetts, find our coniferous plants after the three or four years of intense winter cold and summer drought through which we have passed. The similarity of the climate and flora of the eastern Asiatic and eastern North-American sea-boards leads us to hope that the Conifers of the north of China and Japan will succeed in the northern United States, and so far we have not hoped in vain. The following Japanese Pines seem able to resist all the attacks our climate can make on them: *Pinus densiflora*, *P. Massoniana*, *P. Koraiensis* and *P. parviflora*, while among the Spruces and Firs the following have proved perfectly hardy: *Abies polita*, *A. Alcocqueana*, *A. Veitchii*, *A. Isaga* and *A. firma*. The last unfortunately has a bad habit of losing its lower branches, which will detract from it as an ornamental tree. All the *Retinisporas*, with perhaps the exception of *R. ericoides*, have withstood the severest tests of climate perfectly uninjured. The most ornamental seem to be *R. obtusa aurea*, *R. pisifera aurea*, *R. filifera* and *R. obtusa*, in the order in which they are mentioned. None of the *Cryptomerias* land here, nor can *Thujopsis dolabrata* be considered hardy, although there are occasional specimens in favorable situations. This plant seems to require more shade than we usually give our young Conifers. Too much cannot be said in praise of the beautiful Umbrella Pine (*Sciadopytis*), which is not only perfectly hardy, but of such slow, compact growth, that it is well adapted for the garden proper or the smallest pleasure grounds. *Larix leptolepis* is another of the recent introductions from Japan, which is perfectly hardy here, and of such rapid growth and real beauty that it is deserving of more general cultivation. In speaking of Asiatic trees, I must not forget *Pinus Bengeana*, a native of the neighborhood of Pekin, which is perfectly hardy in all situations about Boston, as is *Juniperus Chinensis*, a tree which, when grown, is really ornamental.

So much for Asia.

I wish I could give as good a report of the introductions from our Pacific coast. Not a Conifer among all those growing west of the Rocky Mountains can be considered really hardy here, if we except *Pinus ponderosa* and the high mountain form of *Abies grandis*, which is *A. lasciocarpa*, or *Lowii* of English gardens, and *Parsonii* of American ones. This is perfectly hardy, and one of the best Conifers in cultivation. Of *Abies Pattoniana* and *A. Mertensiana* I still have hopes, though they must have a longer trial here before we can be quite sure of them. Even *Cupressus* —not *Kaensis*, which stands perfectly at Fishkill, N. Y.—we have had to give up, as well as *Cupressus Lawsoniana*, *Abies nobilis*, *Sequoia*, and all the fine Californian Pines, and hardest blow of all, the beautiful *Libocedrus*. On the other hand, the Colorado Conifers are

perfectly hardy, and we have from there *Abies Douglasii, A. Engelmanni, A. grandis, Pinus contesta, P. Belfouriana* and *Abies Menziesii*. There is a blue form of the latter, raised from seed collected by D. Parry in 1862, which is probably the most beautiful hardy Conifer in cultivation. And here note an interesting fact. Plants of *Abies Douglasii* and *A. Menziesii*, raised from seed collected in California or Oregon, or from trees in England, have in every case been killed by the cold of our winters, while plants of the same species, raised from seed collected at high elevations in Colorado, have, without exception, and in all situations, proved perfectly hardy. Nurserymen will do well to bear this in mind, and as next year will be the cone-bearing year in Colorado, to take steps to procure a good supply of coniferous seed from there, especially of *A. Douglasii*, the introduction of which into the Northern States will be of immense value. Among other Conifers, *Abies orientalis, A. Sibirica* (*P. pichta* of gardens), *A. Cephalonica, A. picturata* and *A. Nordmanniana* are all hardy. We can't hope for much from the Yews, with the exception of the Golden Yew, and even that suffered last winter; nor can many of the Junipers be relied on in this climate. There are, however, many fine forms of *Thuja* and *Biota* which are hardy, and promise to become beautiful additions to our pleasure grounds.

On the whole, the Massachusetts collections are richer than it was natural to expect after our severe winters; and their condition and extent offer considerable encouragement to lovers of coniferous plants in the United States.

Statistical Fallacies.

THE caudal paragraph in a late HORTICULTURIST, apparently climbing up behind for a surreptitious ride to fame, while no friendly or envious "cut behind" catches the attention of the watchful driver, is as follows:

"The orchards of the country are estimated to occupy 500,000 acres, and contain 20,000,000 trees in various stages of growth."

This is one of the bubbles floating in newspaperdom, which some one ought to puncture. I should like to take a hand in the work had I time. The absurdity of this estimate is easily demonstrated without a special census, though there is no record of the area in orchards in all the States. Ohio assessors annually make such returns, and those of 1873 aggregated 391,550 acres, notwithstanding the fact that central and western Ohio are very unreliable regions for orchard fruits. This is nearly three per cent. of the improved area of that State, and seventy-eight per cent. of the above estimate for the United States.

The record of apple trees alone, ten years ago, in Massachusetts, was 2,333,887. Allowing the trees to stand as closely as two rods apart, more than 58,000 acres would be required. Instead of three per cent., as in Ohio, it is quite certain that five per cent. for all orchard fruits in Massachusetts would not much exceed the fact. With 1,736,239 acres of improved land, this would be about 86,000 acres. Even four per cent. of the State returns of 1865, 1,937,378 acres, would make 77,000. At this rate Ohio, Massachusetts and diminutive Rhode Island, constituting together a fraction more than eight per cent. of the area of the "improved land in farms" of the United States, make up the 500,000 acres.

Then what shall be done with the orchards of California, with about four and a half millions of orchard fruit trees, and with the orchards of Michigan, Maryland and New Jersey, and thirty other States? I pause for a reply.

J. R. DODGE.

Washington, Sept. 22, 1875.

Lilies.—The Belladonna lily is recommended as a plant that makes a fine show in autumn. It is a native of the Cape of Good Hope. The flower scapes are generally about eighteen inches in height, and bear from eight to ten blossoms each, of a delicate white color, shaded with rose. It is just as beautiful for the house as it is for borders or beds. It is also a cheap bulb and hardy.

The Greenhouse.

Greenhouse for December.

IF there is any leisure at any time of the year, it should be found during this month, and advantage must be taken of any spare time to prepare stakes and labels in readiness for the busy season, which will soon be here. With the exception of large labels for outside plants, it does not pay to spend time making them by hand, for a year's supply for a small garden can be purchased for a trifle, and time can be better employed than by making small labels by hand; but a number may be painted in readiness for writing when required. A thick white lead paint is the best for the purpose; if written without paint, the name is soon obliterated. There have been several patent pencils invented for writing on wood without paint, but none we have seen have been of any use, and we have returned to the old black lead pencils. These are always to hand, for no gardener should be ever without a pencil and a good knife in his pocket. Any permanent plants requiring names should be attended to, for unless good wood is employed, the labels soon decay. It is best to obtain some cedar wood for the purpose of making those labels to be made by hand. The ordinary machine-made ones will last for all purposes, only requiring a single season's service. For large plants out of doors, a good cedar stick, smoothed and painted on the side for the name, is the cheapest label which can be obtained. If painted white, and the name painted on with a small brush and black paint, it will last for about three years. In England there are good cast-iron labels made for large plants, but we have not seen any in this country which we considered well adapted to the purpose. There are some suggestions about labels in the International Rules for Exhibitors; this may probably bring forward some good ideas on the subject. We require something cheap, neat and lasting, and, above all, not protected by patent rights.

Give all the plants a thorough look through to see there are no insects breeding established. If any insects are found, destroy them at once; it is less trouble to do so now than at any other season. It is well to give a slight fumigation with tobacco each week as a precaution; but plants in flower will generally suffer from smoke, and must be either removed or covered to prevent the smoke reaching the flowers.

Chrysanthemums will now be in full flower, and must be kept cool, or the flowers will not last long. A little frost will do these plants no injury, even when in full flower. The plants require a large quantity of water and free ventilation. If allowed to become very dry, and growing in a close, warm house, they become smothered with mildew. When the flowering season is past, the plants can be cut down and set out of the way to make a few cuttings. These can be generally taken off with roots and potted, when the old plants may be thrown away.

Primulas will now be flowering freely, and must be watered carefully and kept free from decayed leaves. The double varieties are the most useful, for the flowers last much longer than the single ones; but a few of a good strain of single varieties are very useful to make variety.

Cinerarias must be kept cool and moist, or insects will be troublesome. These plants will stand no frost; a very slight freeze will blacken the foliage, and when the buds are showing, the least frost will make the flowers blind. A little manure water will be useful when the buds are showing; if given earlier, it often induces too much foliage. The double-flowered varieties so far have not been at all satisfactory, but we do not see why they cannot be increased from cuttings after securing a few good varieties to start from. We used to propagate the single-named varieties from cuttings twenty years ago, but of late years seedlings have been grown. These are, of course, interesting, as we never know what variety we shall obtain until the plants flower; but it is rather disappointing to find, when the flowers open, that they are all one color, and very small, poor-shaped blooms. The seedsman

is usually blamed for this, but he probably never saw the flowers, and could only take the precaution of buying a strain of seed which was well recommended.

Calceolarias.—The same remarks apply to these plants. It is well to have the plants in flower as early in the season as possible, for these plants do not last long, and soon become deformed from insects in hot weather. A frequent gentle fumigation is a good preventive, but the foliage is easily injured by smoke.

Azaleas.—A few plants must be placed in heat for early blooming, if not already done. Select the forward plants and early varieties. We have plants of *Amœna* in flower in October, but these have been in a warm house all the season. The old *Indica alba* and *Narcissiflora* are good white varieties for very early blooming. It is a good time to give all the plants, including those for forcing, a good washing with the mixture before recommended. If the plants are clean, it will not injure them, and will act as a preventive; but in a mixed collection of plants, at the end of the season, there will be a few specks of red spider and thrip on some of the plants, which will soon increase and spread to other plants. The general stock of plants must be kept cool, and watered when necessary, giving a good soaking, and then leaving the plants to become tolerably dry before watering again.

Camellias will not require much attention this month where the plants are planted out. Pot plants will require careful watering, for if allowed to become dry at this season, the buds will fall off. If the foliage requires washing, it should be done before many of the buds are open.

Heaths will require care at this time, for it is often very cold at this season, which prevents much ventilation and necessitates a large amount of fire heat. Both of these causes are very unfavorable to the welfare of these plants, causing a weak growth out of season, and bringing mildew on the shoots. This must be prevented by dusting with flour of sulphur on the first appearance, or the plants are soon spoiled. Give a good soaking of water when required, but do not be continually sprinkling the surface of pots. The winter-blooming varieties will now be in full flower, and after all, these are the only valuable sorts for the general cultivator.

Deutzia gracilis and Astilbe japonica.—A few plants of these should be placed in heat for early blooming. They are both easily managed, and are very useful for cut flowers.

Tulips and Hyacinths.—A few of the early varieties must be placed in heat if the pots are well filled with roots. If not well rooted, the flowers will be poor, and of little service, so that it would be best to keep for forcing until later in the season. A few pots of Crocus and Snowdrops are also very pretty and useful for winter decoration, if the plants are not kept in heat too long.

Lily of the Valley can be forced in a rather dark and hot place. Some of the New York florists are very successful with this flower, and make considerable money by forcing it for the market. They usually plant it very thick on a hot-bed, employing only sand to grow it in; the main consideration is plenty of bottom heat and a rather dark place. Of course the roots are of no use after once blooming. Fresh flowering roots are imported each year from Germany and other parts of Europe. This appears to answer better than growing the roots in this country.

Roses will require a good, brisk heat, or the flowers will be small and few. A good light house is required for these plants at this season. If the plants are grown in pots, they will require careful watering, but it is best to have forcing Roses planted out; they are much less trouble, and give better results. If mildew is troublesome, give a good dusting with sulphur on the first appearance, for if the foliage is not good, flowers will be poor. A good dash with the syringe on all bright days will keep red spider in check, and a gentle fumigation with tobacco once a week will keep down green fly. Late pot Roses must be kept in a cool place, and rather dry.

Pelargoniums will be now growing freely, and should be shifted into the blooming pots. These plants are most useful when they

flower early; they last much longer, and the flowers are finer. Now is a good time for striking cuttings of these plants; they root freely, and will make nice plants by May to flower in five or six-inch pots. Look out for green fly on these plants, and kill it at once.

Winter-blooming Geraniums should now be in full beauty if grown in a house at from 50° to 60°. In a less heat than 50° they will not flower much. Bedding Geraniums must be kept rather dry, for these plants are best not growing much at this season. Any cuttings not yet potted must be attended to if there is room to pot them singly; if not, they will take no harm until later in the season.

Bedding Plants.—Examine the stock to see if there are any varieties not keeping well, or which, for any reason, the stock is short. Remove the plants into a more favorable position to obtain cuttings before the general stock requires propagating. The double blue Lobelia is one of the plants which does not keep very well; but if noticed in time, and a few cuttings put in at once, they will increase to any reasonable extent before planting time.

Tuberoses will require the same treatment advised for forcing Roses, except that it is necessary, if required in flower at this season, to give a bottom heat of from 80° to 85°. We have found it more satisfactory to lift flowering bulbs from the open ground for winter blooming, in preference to those kept dry from last year. It must be remembered, this bulb will continue growing all the year in the tropics, so that a season of rest is not necessary, although we are obliged to lift and dry them off, for the simple reasons that they are more easy of transportation when dry, and in this climate the frost would destroy the bulbs if left in the ground. Dry bulbs must be stored in a temperature of 60° in a dry place; if stored in a cool place, the heart of the bulb decays, and prevents the flowering.

Caladiums and Gloxinias at rest must be also placed in a warm position, moderately dry. These bulbs keep best in the soil in which they were grown. If allowed to become very dry through storing in a very parching place, the Gloxinias will shrivel up to a skin, and Caladiums will decay with dry rot, both of which must be avoided by occasional examination. The roots of *Alocasia Jenningsii*, being very small, require more moisture than Caladiums. The Evergreen Alocasias must be allowed to continue growing slowly; if the foliage is allowed to entirely decay, the plants frequently die. We have often received complaints on this subject from correspondents.

Marantas must be kept warm and tolerably moist, for most of the species are evergreen, so that the entire loss of the foliage checks the plants very much, independent of the loss of their beautiful colors during the dull season of the year.

Epiphyllums will now be in full beauty. These are very useful and beautiful plants, both for greenhouse and room decoration, the dry heat of rooms injuring these plants but little. By growing a number of varieties, they will be in flower from early in November until the end of February; and by growing some dwarf plants on their own roots, and grafting others at various heights, and also growing some in baskets, a great variety of form is given. There are also many more showy colors than there were in our early plant-growing days, when the varieties were limited to *Truncatum* and *Russellianum*, the former flowering in early winter, and the latter in the spring; but among the varieties raised from each, some flower earlier, and others at various times until spring, if grown in various temperatures.

Crassula lactea or perfoliata is a charming dwarf plant for winter blooming, and will now be in full flower. This is another capital plant for rooms, and the Echeverias of the *retusa* section makes a capital contrast in color for the same purpose. Since writing the notes on Epiphyllums, we notice these plants strongly recommended for room plants in the English *Gardener's Chronicle*. It is more essential to grow plants for that purpose in this country, which will stand the dry heat of rooms. We are obliged to keep more fire, and the climate is also much drier here than there.

Poinsettias will now be in full beauty,

and must not be kept too hot, or the beauty will soon be over, and they will not last long if placed in a very cool house.

Orchids.—Many of the winter bloomers will now be in full beauty, and make charming variety for decorating the greenhouse, and also for cut flowers. A few orchid flowers make at least fifty per cent. improvement in value and appearance to a stand of cut flowers. *Cypripedium insigne* will be in full flower. This plant, with care, will last in a favorable room three months in flower. Zygopetalums in variety will still be in flower; also late-blooming *Lælia autumnalis, L. acuminata,* and the charming *anceps* and *albida* will also be in full beauty. *Lycaste Skinneri* and *Maxillaria picta*—the latter a very free bloomer, and smelling like Hawthorn, *Lælia superiens*—will flower at the end of the month. The lovely *Dendrobium crassinode* will open early in the month. *Cattleya Warscewiczi* and *trianæa* in variety will also flower. The fine *Angræcum eburneum* and *bilobum,* with Calanthes in variety, including the splendid *Veitchii* and the magnificent *Phalænopsis Schilleriana* and *grandiflora,* will be in full beauty. We could mention a number of other fine orchids flowering at this season, but space is limited, and we will not give the printer too many long names at once, for fear of misspelling, or we might, on receipt of our number of The Horticulturist, be astonished at two or three mistakes in a single word—a fact which we noticed in a well known American nurseryman's catalogue in "Phalænopsis," with seventeen other mistakes on the same page. We only mention this to show critics they are open to criticism, for with every care, there is occasionally a mistake in printing names from a written copy; but in a catalogue there is no excuse, because every name is supposed to be corrected before the edition is printed.

A Few Greenhouse Plants.

Abutilon Boule de Neige.—This is the best variety of this useful family of plants in cultivation. It is of erect habit, having light green foliage, and pure white flowers, which are produced very freely—in fact, the plant is always in flower. It is very useful for cutting during the winter months, being the only really good white Abutilon we have; and like the others in its class, it is easily propagated from cuttings of the half-ripened wood, thriving well if potted in good loam and decayed manure.

A. vexillarium (*mesopotamicum*).—This one is of trailing habit, producing its numerous flowers singly from the axils of its lanceolate leaves. They have a red calyx, with yellow corolla. When trained on a rafter or trellis, the flowers are seen to more advantage than when allowed to ramble at will. There is a variegated variety of this, which is also very useful for either in-door or out-door decoration.

Acacia.—The species in this genus of plants are mostly natives of Australia. They are mostly of easy culture, and very attractive for decorating the greenhouse in winter and spring months, and very useful for cutting purposes. Pot in good loam and leaf mould; allow to stand out-doors during the summer months, giving plenty of water when necessary; encourage all the young growth possible, as it is on it the flowers are produced the following winter. Keep the plants from getting too large, by shortening the branches after they have done flowering, which will also help in producing more vigorous growth. There are many species in this genus. The following are the easiest grown and finest bloomers:

A. arnata—This species flowers when very small, producing its little golden balls of flowers solitary in the axils of the leaves.

A. Drummondii—One of the very prettiest in the class, having deep green pinnate leaves, with small cylindrical spikes of pale yellow flowers, produced abundantly. This forms a very compact, neat-looking plant, never growing to a large specimen.—*M. Milton, in Country Gentleman.*

Van Hulle, of Ghent, Belgium, has received the buds of a water lily from Paraguay, that is said to excel the Victoria Regia in size and beauty.

Garden Gossip.

Suggestive Notes.

Table Decorations —An easily constructed, yet handsome ornament for the supper table, may be arranged as follows: In the center of the table, and if possible directly beneath the chandelier, place a well-shaped plant of graceful form, such as a Palm or Fern, concealing the pot with a wire frame closely woven, filling the space between with moss. Into this stick cut flowers with sprigs of small Maiden-hair Fern, arranged in an easy natural style, as any attempt at formality will destroy the effect. At the base, laying flat upon the table, place perfect Fern fronds of various kinds, which will impart the appearance of a rich green fringe.

Suspended from the chandelier, small wire baskets filled with flowers, ferns, and grasses, are very effective; whilst over the gas fixtures, may be twined delicate garlands of smilax, or fine-leaved Retinisporas. The outline of the wire frame should be bell-shaped, the larger diameter being at the base, and the smaller fitting neatly around the surface of the pot. Cover the latter with bright green moss, which may be studded with small flowers, or not, as taste directs.

Care of Plants.—There is an old saying, that plants are aware who love them, but it should have been, plants show by their appearance who love them. Many people fancy they are fond of flowers, and always have a few in their windows, but the fondness is too slight for the owners to give them needful attention. We have seen two windows side by side, the one filled with plants in the most luxuriant state of health and covered with bloom, whilst the other would embrace an array of pots filled with miserable half-starved sickly specimens, showing conclusively that something was radically wrong. And yet, were you to inquire of the respective owners, they would each say they were devoted to plants. The question resolves itself into this; any one who really loves plants sufficiently well to take care of them, and who feels an interest in the work, will always find out the method to keep them in a state of health. The necessary rules are few but imperative. Use only light fibrous loam, carefully avoiding garden soil; water when needed only, and then thoroughly; sponge off the dust as it accumulates on the foliage; give fresh air in mild sunshiny weather; fumigate with tobacco smoke when the green fly appears; and remove all dead leaves and sickly shoots.

A Valuable Native Tree.—The American *Agriculturist* accompanies a fine illustration, with a meritorious notice of the Yellow Wood, known to most as the *Virgilia lutea*, but to modern botanists, as the *Cladastris tinctoria*. It is found in rich soils in many sections of Kentucky and Tennessee. The tree never attains a large size, and is, therefore, valuable for the numerous small suburban places, where the larger trees are too frequently used, but always inappropriately.

When in bloom it is especially pretty, with its long drooping panicled racemes of large white flowers; and, to crown all, the tree is unexceptionably hardy, and grows thriftily under good cultivation. The *Agriculturist* remarks that it is one of our native trees that is too little known, and instances a nurseryman who was forced to destroy his trees, from lack of purchasers. We may say, more than one in the trade have found themselves placed in the same position, and we know of whole rows standing intact in a nursery, where each tree is a perfect specimen, and where they will stand in all probability, until the ground shall be needed for a better paying crop.

New Hardy Perennials.—The interesting Saxifrage family is represented by a very early blooming species called *Saxifraga Burseriana*, which promises to be valuable and distinct. The leaf-crowns are rigidly compact, of a pretty grayish-green tint. The flowers are borne on scarlet colored stalks, and are pure white, comparatively large, and open with the snow drop. It is exceedingly effective on rock work. Another stranger, *S. Notata*, is conspicuous for its remarkably

dense and cæspitose habit, the leaf-crowns appearing wedged together. It blooms much later than the above; flowers ivory-white in color. Like the preceding it will, doubtless, increase our list of handsome rock plants. Two new hybrids are also said to be very distinct and showy. One called *S. longifolia pulchetta*, had quite narrow linear-lanceolate leaves; and the other *S. longifolia marginata* is distinguished for its very broad leaves, dotted or margined with white.

Sedum Novæ Species of Dr. Hooker, a beautiful new succulent, is noted for its very glaucescent or silvery-white leaf-tint. It is a very dwarf and compact grower, and described as being remarkably distinct. *S. Californicum* has just been introduced into English gardens, and has received a first-class certificate of merit by the Royal Botanic Society. From its dwarf compact habit, it may at first sight be taken for a House-leek. A pretty little rock cress, called *Arabis Japonica*, forms a compact cushion of rich green foliage: fine for the rockery.

A new *Armeria* is also spoken of as quite novel, being the first pure white flowered form yet grown. It has been named *A. cephalotus alba*. Like the others it is entirely hardy.

Epilobium obcordatum is described as one of the finest of the Willow-herb family. It is a rare Alpine species with rosy-crimson, salver-like blossoms, nearly one inch wide.

A new form of *Lavender*, with fragrant white flowers, and glaucous-white foliage, is likewise announced.

The Pampas Grass.—After testing a great variety of ornamental grasses, we are forced to admit there is nothing so far introduced that will supersede the *Gynerium argenteum*. There is a peculiar grace in the long slender drooping leaves of this superb plant that seems to be lacking in all the others; even the *Erianthus Ravennæ*, with its stately aspect, appears stiff in comparison. To see the Pampas Grass in perfection one should visit the California Gardens around San Francisco, and especially at Oakland, that city of rural homes, but even here at the North, it may be preserved in the open air during winter, by covering the roots with a thick coating of dry leaves and keeping off the rain by means of sloping boards.

It may also be taken up and removed to the cellar on the approach of frost, when it will remain uninjured by covering with soil, and occasionally administering a little water. Although introduced but a few years since, already our florists are multiplying the varieties at a wonderful rate. Some of these are quite distinct, whilst others are scarcely worthy of a distinctive name. Among the best might be mentioned *alba variegata*, and *aurea variegata*, the first with white stripes on the foliage, and the latter with golden yellow markings; *nana compactum* is a neat little compact growing dwarf form; *reflexum rubrum* is said to be a pretty variety with very distinct foliage and flowers; *floribunda* is remarkably floriferous; *giganteum* has a very large truss, and is enormously vigorous in growth; *roseum* is distinct and pretty with rose-purple colored flowers, and a form of this with dark reddish bloom, is called *purpurea;* whilst an entirely new variety, *carminarum*, is reported as having an elegant truss of bright red flowers.

New Greenhouse Plants.—Florists who deal in cut flowers will, doubtless, find the new evergreen stove shrub, *Tabernamontana camassa*, suited to their purpose. In growth it is dwarf and compact, with small, bright glossy-green leaves, reminding one of a Laurel, and terminal cymose-racemes of double white fragrant flowers, in the way of the Gardenia.

It is more easy to manage than the latter plant, and produces far more flowers, which remain a longer time on the plant. It also commences to bloom at a younger age, and the color is lighter.

A new climber, *Senecio macroglossus*, has neat ivy-like leaves, and golden-yellow flowers nearly two inches in width; succeeding admirably as a decorative plant for rooms.

Cantua corymbiflora, is the name of a new and distinct plant introduced by Mr. Roezl. The trumpet-shaped pure white flowers are borne in terminal trusses.

Gardening.

Winter Protection of Plants.

BY A. S. FULLER.

PROTECTING plants in winter is an operation which admits of an endless number of variations. Generally, the object of protection is to guard against injury from a low temperature, still this is far from being the principal source of loss either with tender or half hardy plants. Sun, wind and drouth in winter cause a far greater destruction of plants than the mere temperature of the atmosphere. If a man should set up a board on the south side of a tender rose or raspberry plant, thereby shielding it entirely from the warm rays of the sun in winter, many persons would think it a singular method of affording protection; but in ninety-nine instances out of every hundred it would be far better than placing the board on the north side.

I have known many of our tender raspberries to withstand twenty degrees below zero without injury, when grown in a shady place, while other plants of the same sort were killed to the ground in exposed positions, only a few feet distant; consequently we cannot attribute the difference to temperature alone. Sudden changes of temperature in winter, to which all plants are subjected when exposed to the sun in our climate, is very fatal to the half hardy kinds, but even this is not so injurious as the dryness of the atmosphere, which appears to hasten the evaporation of all the natural juices of the plants, leaving the stems and branches as dry as though baked in an oven.

It is now well known that evaporation of the natural juices from the young twigs of trees continues even during the winter months, proceeding more rapidly during the prevalence of dry winds than when the air is still, and well charged with moisture.

It is owing to this evaporation that so many kinds of trees fail upon the Western plains, and especially evergreens, through the leaves of which moisture is constantly passing off during the cold dry weather in winter. At Greeley, Denver, and Colorado Springs, and other settlements in Colorado, evergreens have been planted over and over again without success, while right in sight upon the mountains, various species grow luxuriantly, although subjected to many degrees lower temperature. But the roots of these trees, growing at elevations of five to ten thousand feet above the sea level, are imbedded in loose, moist soil, or reaching far away in the crevices of rocks, while the melting snows and rising mists from the waterfalls of the deep canyons keep the surrounding atmosphere constantly charged with moisture. On the plains below, the earth contains very little water when it freezes up in the fall, little or no rain or snow falls during the winter, while drying winds prevail almost unceasingly; consequently, evergreens and many other trees are actually dried to death, and not killed by cold.

It is for the want of making hygrometrical as well as thermometrical observations in regard to a region of country, or even of circumscribed localities, that so many persons make such lamentable failures in attempting the cultivation of certain trees or other plants on an extended scale. The climate of a locality may be warm enough to insure the success of a certain class of plants, but at the same time be too wet, or too dry. Now, the same principles which we see demonstrated to such extremes in Colorado, are not wholly inoperative with us down here on the seacoast. By throwing our grape vines down upon the ground in the fall we protect them somewhat from cold, but the principal benefit is in securing a moist and unchangeable atmosphere.

The benefits, therefore, to be sought through protection of half hardy plants in winter are not in consequence of employing means for keeping out the cold, but by preventing evaporation and injury from sudden changes of temperature.

In all localities where snow falls to a considerable depth in winter, and remains on the ground, all low growing plants receive a sufficient protection, but in the intermediate regions, between the North and South, or upon the Western plains, some kind of an arti-

ficial covering is required even for what is usually considered hardy plants, for instance, the common varieties of the strawberry. Only a slight covering is required, but that little will usually produce very marked beneficial results.

But in giving protection to half hardy plants, such as roses, evergreens, and climbers of various kinds, it is well to remember that it is not best to entirely shut out the water which may fall in the form of rain or snow, for as I have endeavored to show that moisture is a very essential element in preserving the life of plants even in winter, I have often seen plants done up so tightly in straw, that they came out in spring as dry as a clay pipe-stem, and the gardener, who made this shroud, wondered why they winter-killed when "done up so nicely."

With all half hardy vines, such as clematis, honeysuckles and roses, I merely lay them down upon the ground at full length, or coil about the stakes near the base, then throw a little loose soil over them or a forkful of coarse manure. Shrubs, such as evergreens, requiring protection, are given it by merely driving a few stakes around them, and the space between filled in with coarse hay, a small quantity placed over and among the branches.

Tea, Bourbon, Noisette, and other tender roses, may either be dug up in the fall and heeled-in, or bent down and covered with coarse manure or earth at the approach of cold weather.

As I protect my little ornamental plants from changes of temperature and drying winds in winter, so would I protect the orchard by surrounding it with a belt of evergreens, if located in a dry climate, like that of a greater part of our Northern States.

Interesting and Ornamental Grasses.

BY A. VEITCH.

ALTHOUGH grasses constitute a large percentage of the vegetation of the globe, but few of them, comparatively, have been taken hold of by the horticulturist, and employed by him for purposes of garden decoration. Their place in the economy of life seems to be other than that, and the benefits they confer of a more substantial and utilitarian character. Hence, it is, they are regarded chiefly as furnishing the principal element of support, not only to man in his pride of place, but to all beasts wild and tame.

But, notwithstanding this, there are individuals in the family which challenge attention, if not for the beauty of their colors, at least for the gracefulness of their forms. This is best known to those who have so far yielded to their allurements as to seek after them in their natural habitats; whether that be in the glades of the woods, or on treeless uplands; in dark meadows, or by the sides of lakes and streams. Go where one may, fresh forms meet the eye as interesting as they are numerous. There is the light and airy Agrostis aspera, and Panicum capillare, swaying loosely in the wind. The more stately Sorghum nutans with panicles somewhat contracted, russet-brown, and polished so as to shine on all important occasions. And the clandestine Vilfa, whose flowers seldom get outside their sheaths, yet fail not to perfect seed as readily as if basking free in the sunshine.

In observing this trait in the Vilfa for the first time, one is inclined to ask, What burrowing insect has been at work here conveying the fertilizing meal to where it can do the most good? Or what other natural provision is there, making the accomplishment of this work possible under so great seeming disadvantages? Or what the constitutional peculiarity which requires concealment to perform that which in the most of cases can only be done in freedom and light? In this case, however trivial it may seem, there is a most interesting adaptation of means to ends. The filaments, three in number, which spring from the base of the ovary (*hypogynous*), are exceedingly delicate, not being required for support, but simply as channels through which the anthers receive their nourishment; and are equal in length to the ovary, which is crowned with two styles; around this bifurcate summit the anthers are arranged to look very much like the cup-like hoods which surmount the spore cases of many kinds of moss. So we see in this adjustment of parts how the work

of fertilization can be accomplished even though every part of each individual flower is closely wrapped up in its own subtending glumes, and all in a sheath as close fitting as the cerements which enfold an Egyptian mummy.

But this aside : the species we have named, and many more to be met with in every rural walk, are deserving of as much attention as some which the cultivator regards with favor and nurses with care. It is true, they need not be ranked with cultivated plants, nor occupy space in the garden ; but they may at least be planted in appropriate places about the rural homes of those whose tastes lead them to study the characters, or admire the beauties of this class of plants. In this way home-walks might be made much more attractive than they often are, and present a greater number of individual objects for study and comparison than is generally to be met with in such narrow bounds. More especially is this the case where water mingles with the scene, either in large or small bodies ; for many of the most stately and showy species flourish best where that element abounds. And these, when properly disposed of, either by the margins of such bodies, or on islets, seem more in harmony with nature, and lend a better grace to all true adornments, than any number of " animals fantastical."

But in these days when grouping plants with a view to produce pleasing or striking effects is so generally practiced, we are confined to a few varieties known only in gardens, and foreigners at that, but withal possessed of excellent qualities for this kind of work.

And perhaps it is not slighting any one in the group to place in the front ranks Arundo Donax versicolor—a plant which has been cultivated more or less from time immemorial, but never yet to the extent it deserves. Its broad ribbon-like leaves set off with fine effect the variable breadths of yellowish-white and green stripes which run the whole length of the blades, and down the sheaths which clasp the stem to the second joint below ; thus giving an example of a plant not only with variegated leaves, but stems as well. Its lively and striking appearance render it suitable to plant where the aim is to relieve a dull aspect, or throw an air of cheerfulness over objects which may be deemed oppressively sober. In mixed beds it is perfectly at home, and contrasts well with almost any other plants with which it may be associated ; with Dracænas, Coleus, Cannas, and the like ; either in distinct lines, or when no other order of arrangement is observed than what has exclusive reference to height and color.

It can be propagated, though sparingly, by dividing the old roots ; or as Dracænas are by laying well ripened cones in sand in the propagating house ; or the plants may be either potted or placed in tubs of water with a little earth added and placed in a temperate house, where they will continue to give a fair supply of cuttings all the winter through.

A suitable companion for this old favorite is now to be had in Eulalia Japonica variegata ; a recent introduction from Japan, as the name imports, and one which is destined to take a leading place in all collections where grasses are admissible. It is said to be perfectly hardy—an advantage it has over the Arundo—and from the way in which it has acted the present season, we judge it can also be increased much more readily. The leaves are long and recurved ; about three-quarters of an inch in breadth ; rough on the edges ; strongly keeled, and distinctly striped with clear white and green. The entire plant resembles very much Pandanus Javanica variegata, only the leaves are two-ranked, instead of being in threes as in the Pandanus.

In addition to its being valuable as a bedding plant, the flowers also are attractive, whether on the plant, or when gathered and assorted with others as household ornaments. They are not, however, superior in this respect to those of another also of recent introduction—Arundo conspicua—and for stateliness and show in the garden greatly superior. This new arrival we regard as more valuable than even the Pampas Grass, which, in general appearance, it very much resembles ; as it flowers with greater freedom and may also prove more hardy.

New Haven, Conn.

Noxious Insects.

THE *Practical Farmer* gives the following brief directions concerning a number of insect pests of the garden, which are so clear that they will aid any farmer or tree grower to do much towards protecting his products from some of their worst enemies:

Cabbage Flea.—A small, black, nimble, jumping insect; eats the leaves of young cabbage plants, just germinated from seed, and also of early cabbage when transplanted from hot beds. A dusting of fresh air-slacked lime lightly upon the leaves when wet with dew in the morning will kill or drive them off. If three applications are needed, let forty-eight hours intervene between the applications. We have never used anything so effective as this.

Cabbage Louse.—A fat, greenish, mealy insect; multiplies rapidly; eats the leaves of large cabbage. Dusting of air-slacked lime kills them.

Cabbage Grub.—A black, ugly grub; lives in the ground, and eats through the stems of young cabbage plants of all varieties so that the heads fall off. Scratch lightly around the plants and those near them. When bugs turn up kill them; where one is found another is not far off, as they are always in pairs, and but little distance from each other.

Wire Worm is more destructive to seeds, as corn and lima beans. Examine for the worms and kill them.

Celery Grub grows two inchs long and thick; striped green and black; pushes out a horn when touched, eats the leaves of celery, carrot, parsnip and parsley. Catch with the hand and kill it.

Mignonette Grub.—Pale green, small at first but grows rapidly, eats the leaves of Mignonette, Sweet Alyssum, etc. Catch and kill it.

Black, Hairy Worm.—Kill whenever found; it is very destructive.

Yellow, Hairy Tree Caterpillar.—Kill wherever found; it is always in singles, upon trees, bushes, fences and almost everywhere in its season.

Black Chick devours rapidly the leaves of Sweet Clematis, egg-plants, peppers, etc. One syringing with carbolic acid soap and water with flowers of sulphur will kill it. It is very nimble.

Common Tree Caterpillar.—Kill with syringing carbolic soap solution upon small trees, first catching all that can be caught; upon half grown trees, dust the leaves thick with slacked lime early in May to keep them off, but if fairly on hand reach up a round hair brush on a long pole, turn it round in their nest and pull them down and kill; after that spread lime over the trees or syringe them with strong solution of carbolic soap.

Plum Curculio.—Dust with slacked lime, and syringe with strong solution of carbolic soap and sulphur in early spring. This will tend to keep it off, at least for a while, and then repeat the dose.

Rose Bug is very numerous; syringing with strong solution will drive them off, but they afterward attack fruit trees—especially plum; better take a pail half full of boiling water, and in the morning take hold of a rose shoot and shake or strip the bug in a pail, this kills them, and is very easy and quickly done.

Dusty Louse.—Attacks the monthly honeysuckle and found at the roots of German Asters in hot, dry weather. Syringing the honeysuckle with strong carbolic solution will kill it; also watering the asters heavily.

Shoot Grub.—A fly; deposits its eggs in the young shoots of roses and old shoots of currant bushes. Grubs are hatched and eat into the hearts of the shoots and live upon the centre and kills them; when shoots droop cut them off and split them open and there is the grub, which should be destroyed.

Evergreen Tree Grub.—A fly; deposits its eggs in the main leader of the evergreen trees; grubs are hatched and eat into the heart and live upon the pith—eating upwards. When the leaders wither or look sickly, cut them off and split them up and kill Mr. Grub; it can be seen when such grubs are in the shoots as there are holes with cut wood—like sawdust—around them and upon the shoots a distance off.

Fruit Culture.

Twig-blight in the Apple and Quince.

BY R. J. BLACK.

DR. PARKER'S article in the October HORTICULTURIST, on "The New Apple Tree Disease," seems to describe Twig-blight, as it is called in several parts of the country.

The disease, or whatever it is, is peculiar, being worse some years than others; and attacking some varieties and passing by others. The Fall Pippin especially, had become so much affected, year after year, that the variety had become worthless, and was thrown out here; but this year (a very wet one until after harvest), there is no blight; and Fall Pippin and other affected sorts are once more beautiful in their green luxuriance; except that the bare dead shoots in various parts of the trees, tell of the past trouble: *May it be past forever.*

It has been noticed that certain sorts top-grafted on a sort not subject to the blight themselves, blighted badly, without affecting the stock. Fearing the loss of the varieties, as they were rare, cions were taken from them and grafted on two other trees, different kinds, at some distance and in different exposure; and the hope that the experiment might be successful has been verified thus far, as in three years they have not blighted. Whether this immunity is the result of change in locality, or of a power of resistance in the latter stocks, which the first one possessed but partially, is only matter of conjecture.

Fairfield Co., Ohio.

Huckleberries.

BY C. W. I.

EDITOR HORTICULTURIST: In looking over the August number of your very interesting journal, I met with P. D. Hammond's article on the Huckleberry.

He undertakes to say that this berry can be cultivated, I suppose he means at a profit. He also quotes Fuller on the same point, but I would like to know why these experienced fruit growers don't go to work and try this experiment themselves, and reap the profit that can be made by so doing? I have no doubt it can be civilized, but the cultivated fruit cannot be made to pay when it can be obtained in quantities for the picking. There is another point that I wish to call attention to, and that is, the different varieties. Why has no one ever considered this subject enough to classify and name them? The fruit is a good one, very saleable in New York markets, and when scarce sell from $4 to $6 per bushel. Yet the varieties come and go without even a name. If they are large and fine they sell readily to consumers, if small and hard they are shipped off to a more distant market.

Mr. H. refers to a forty acre field. Why, in New Jersey there are thousands of acres containing this fruit, and it is not unusual for us to have a thousand bushels daily during the height of the crop.

New Grapes at the Ohio Fair.

MR. M. B. BATEMAN, writing of the new grapes shown at the Ohio State fair at Columbus, to the Ohio *Farmer*, says: "Mr. G. W. Campbell, who was absent at Chicago, sent in a box of new grapes, consisting of Eva, Lady and Martha. His letter accompanying them stated that the bunches of Eva were the first product of a graft set last year from Gen. Brinkerhoff's vine at Mansfield. The bunch and berries are smaller than those of the Lady and the time of ripening later, but there may be improvement in all these respects as the vine grows older. The quality as shown at Mansfield, when ripe, was considered finer than Martha and Lady. The specimens of Lady at this meeting were well ripened, showing its earliness, and Mr. Campbell stated that all varieties with him were ten days later than usual this season. The quality was pronounced very good—much better than Martha, and the bunches of neater shape. A new wine grape, not yet named, was presented by G. M. High, who stated that it was a seedling produced at Put-in Bay by a German named Schriedt, who claimed

that it was from seed of the Delaware; but its appearance and flavor show more relationship to the Clinton. It has fruited for five or six years, and the vine is found to be very healthy and productive—more so than any others in poor seasons—and the fruit ripens early and makes excellent wine. It was awarded the premium for the best new seedling at the fair.

Mr. G. F. Newton, of Millersburgh, presented a new grape, a seedling of Isabella, and ripening about a month earlier than that variety—the fruit at this time being riper than any samples of Hartford or Ives. The color is black, like Hartford, a trifle smaller than that variety, and having the same habit of dropping from the stem when handled. The quality was thought to be not quite as good as the Hartford, but its earliness may give it value, notwithstanding its faults.

Another seedling grape was presented by Mr. Todd, who stated that it came from Berlin, Erie county. It was of reddish color and fair appearance, but too foxy to merit commendation.

A number of seedling apples were presented as usual at the fair, some of them of good appearance and quality but none seeming to merit special commendation or the premium offered."

A Governor's Vineyard.

THE Richland (Pulaski county, Mo.) *Sentinel* has the following statement concerning ex-Gov. Brown's vineyards: "About three miles from Iron Mountain we came to the farm and residence of ex-Gov. B. Gratz Brown and his brother, Knox Brown. We had learned that they had quite an extensive vineyard and orchard, and having a curiosity to gratify in the fruit department, we resolved to call and see what we could learn. We found a very intelligent colored woman at the door, and inquired if Mr. B. was at home. The governor was away, but presently Mr. Knox Brown made his appearance and very kindly showed us through his vineyard.

They have about 15,000 vines, all trained to stakes, and small stakes at that. They consider stakes the best for economy in cost, cultivation and air influence. The vines are in rows about seven feet each way, which they think too close. They favor eight by ten feet. The vines are grown to two arms some three or four feet long, then bowed over and twined together, so that they are not over two and a half feet high. The new wood is allowed to make its full growth. Towards spring, the new wood is cut back two or three joints or eyes, for fruit, and the new growth again allowed to spread itself for the next year's clipping back. They are full in the faith that grapes will pay better than anything else in the business.

I was particularly struck with their peach orchard, the trees all branching out regularly from sixteen to eighteen inches from the ground. In setting the trees, they cut them down sixteen inches and trimmed off all the side branches, leaving a little bare naked stub. Nature soon forces out some new shoots, which can be very easily trained in any desired shape. They then only prune back the ends of the longest branches, and keep the tree top open. Their apple trees are treated very similarly, though allowed to branch out a little higher from the ground. Growing them in this manner keeps them stocky, out of the way of high winds, and not the least merit is, that nearly all the fruit can be hand-picked by persons standing on the ground, thus preventing the fruit from being bruised as in the ordinary way.

Another marked feature in their farming is, several hundred acres of timothy meadow in connection with a flock of sheep and a herd of cattle. They find hay far better for stock than corn—cheaper to raise and more economical in feeding out; and stock look better, sell better and are better. When will our farmers turn three-fourths of their corn fields into timothy meadows? Until then, they must expect an up-hill road to travel.

New Grapes.

THE *Prairie Farmer*, acknowledging receipt of a new grape, the Elvira, a new and promising wine grape, raised by Bush, Son & Meissner of Bushberg, Mo., says:

"It is a seedling of Taylor, grown by Jacob Rimmel, of Missouri, and has all, or nearly all the good qualities of its parent, with the advantage of being a more productive variety. Its leaf is said to show traces of a Labrusca cross, and we fancy we detect a slight trace of foxiness in the taste. The berries are considerably larger than those of the Taylor, and the bunches exceedingly compact, unlike that variety, which fertilizes badly. It is too small and too light colored for a market grape, but should make an excellent wine. It propagates readily from cuttings, like its parent, and can soon be grown in great quantity.

Mr. Bush says: "Its great productiveness, hardiness, vigor of growth and foliage, comparative exemption from rot and mildew, (standing the severe test of this season, even), the purity of its taste—free from foxiness or other unpleasant taste—its richness in saccharine, induce us to look upon this grape as the first new seedling that may replace the Catawba—which most of us had to discard, though very reluctantly."

Wine Culture in Italy.

THE growth of the vinicultural interest in Italy during the last few years has lately manifested itself by remarkable results. At the London Exposition in 1862, of 130 kinds of Italian wine exhibited, 45 received premiums. At the Vienna Exposition of 1873, of 230 Italian wines exhibited, 101 either received a premium or an honorable mention. Italy devotes over 6,000,000 acres to vine culture, producing in 1873 over 870,000,000 gallons of wine. Of this amount about 250,000,000 gallons are credited to Naples and Sicily; 200,000,000 gallons to Emilia, Umbria, and the Roman marshes; 200,000,000 to the older provinces. The average price, as officially estimated by the Italian statistical authorities, was about nineteen cents per gallon, making the total value of the wine crop product $165,000,000. The value of exports of Italian wine rose from $2,799,696 in 1871 to $4,695,672. France takes the largest proportion of this export; next in order England, Switzerland, Austria, and the United States. Egypt takes a large quantity of bottles, while considerable quantities of bottled wine are shipped to Tunis, Tripoli, Brazil, and Holland.—*Ag. Depart. Report.*

The Black Slug.

WE perceive that the black slug has been at work on the plum and cherry trees, destroying the vitality of the foliage. They devour the pulpy portion of the leaves, leaving the fibrous skeleton. The leaves do not have the blackened appearance of those trees affected with blight, but are of a brown color.

This is not a formidable pest, except when neglected. If allowed to defoliate the trees for a few successive years it will destroy them. Almost any kind of dust, scattered over the leaves, will kill them. They are covered with a slime to which dust will adhere, stopping up the pores and suffocating them. Fine road dust, coal ashes, air-slacked lime, or any other dust that will fly freely, will banish them.

It is folly to allow an enemy, so easily vanquished as is the black slug, to inflict so much injury upon trees, bringing the sere and yellow of autumn in midsummer.

Strawberry Mulch.

LAST spring we put out plenty of oat straw between our rows of strawberries, which makes a very clean, rich mulch for the vines, keeping the berries delightfully neat. After harvesting the fruit the mulch was removed, and since then we have been diligently at work eradicating the oats that have sprung up where the straw lay. But in the last number of Purdy's *Fruit Recorder* there is a short item giving us a hint worth preserving. It is recommended that oats and buckwheat be sown between the rows and allowed to grow for the purpose of a mulch. If we had only known that we were right in the fashion and allowed our oats to grow, what an amount of labor we might have saved.—*Detroit Free Press.*

Quince Culture.

A correspondent of New York Sun, writing on quinces, says that the apple or orange quince is generally most salable, and is most grown. It is larger than the pear quince, and the fruit more tender. Rea's Mammoth, a sub-variety of the orange quince, is highly commended as being much larger than the common variety, and more productive. The fruit is also tender throughout, like an apple, and free from the hardness and harshness of the pear quince, found sometimes in the orange. There are some seasons when the pear quince, ripening and keeping later, has a decided advantage over the earlier variety, as, for example, when there is a glut of fruits early in the season, depressing prices of all kinds. In such years I have known pear quinces to sell at high prices after all the orange quinces had rotted. Generally, however, the market for quinces is for canning, and to a great extent independent of the abundance or scarcity of other fruits. There is no better canned fruit than quinces, and none other will quite take its place. As the orange quince will probably always be most grown, the buyers will generally be in market chiefly when it is at its prime. Those who have grown Rea's Mammoth for two or three years say it is so much larger and more productive than other varieties that it is destined to displace all. My own trees of Rea's Mammoth are not yet in bearing. All varieties of quinces are hardy during the severest western New York winters. As the blossoms do not appear till June, there is never any danger of injury from late spring frosts.

Quince trees may be transplanted at one, two, three, five, or even more years old, of course taking care to injure the roots as little as possible. An old tree may thus be transplanted, but the fruit should be picked off the first year and a full crop can be had the next. But young trees are so much cheaper, and come into bearing so soon, that for a large plantation they are preferable. My way has been to buy very few quince trees, except to get a new variety—as Rea's Mammoth. They are propagated very readily from layers, and especially by a method described in Thomas's American Fruit Culturist, page 299—by cutting off the younger shoot, leaving ten or more buds at the base, and earthing around these. At the end of the year these buds will be vigorous shoots, well rooted, and ready to plant in the orchard. This is cheaper than buying, as young quince trees are now quite high, and especially the Rea's Mammoth. By purchasing half a dozen or dozen plants, and layering them, N. H. can soon supply himself and have quince trees for sale. He will also find an advantage in growing roots or other hoed crops between the rows of his young quince trees, thus insuring their better care and making something from the land for the two or three years before his quince orchard will begin to bear.

Camphor in Formosa.—As the gigantic laurels from which the camphor is obtained are found only in the mountains in the possession of the arborigines, the acquisition of a constant supply is somewhat difficult. Only from those tribes which are on friendly terms with the Chinese can leave be obtained to cut down the trees. With such, a present given to the chief, gains, as a rule, the required permission. The Chinese woodman then makes a choice of the trees which appear to be well supplied with sap, and, having felled them, he keeps the best parts for timber, and reserves the remainder for the iron boiling pots, by means of which is evolved the sublimated vapor which yields the camphor. In the neighborhood of Tamsuy alone, 800,000 pounds of this valuable commodity are produced annually. Petroleum also adds to the riches of the island, which, both from its natural and artificial products, is well worth a struggle on the part of the Japanese to obtain, and on the part of China to defend.—*Cornhill Magazine.*

Mr. Vick says in his "Floral Guide" that ten drops of carbolic acid, to be obtained from any of our druggists, put in a pint of water and poured on the earth in flower pots, will destroy all earth-worms, which do so much damage to the plants.

Editor's Portfolio.

FAREWELL WORDS.

Sadly do we write these unwelcome words —*Farewell, Farewell!*

To the good old friends who through long and unchanging years of prosperity or vicissitude, THE HORTICULTURIST has made many a glad visit, and brightened many a face, home, or rural retreat, with its pleasant ways, and helped with many a useful suggestion, the tidings that *this is its last number*, will come with astonishment and perhaps pain. Long has been its life of honor, and to a greater extent than any similar journal has it constantly borne with it the current of popular appreciation and well-deserved fame. *Thirty* years of noble life brings it to full manhood; and yet, as it lays down its life, and we feel no more it is to give a pleasant greeting to us, no more it hath sweet converse with friends social and sincere, it seems like the breaking up of family ties, the sundering of a link in the great chain which binds our tastes together, and the burial of one very near and dear to us. But time hath wrought other changes too. Many of our old friends have left it for newer and more popular aspirants for public favor; others have gone the long silent way beyond this life, and have left none to take their place. One by one the old-time ranks have broken; and among the veterans of by-gone years who have maintained steadfast friendship to the *good old Horticulturist* we find but very few who still remain true.

Newer and cheaper journals have enticed away its lovers, though enough have still remained and kept its vigor firmly maintained; yet it was impossible to gain new glory or reach to wider success.

Treasuring pleasant memories of the past; looking lovingly upon all the good it hath done, and trusting that in its new field of usefulness, where, with added influence and more permanent success, its name will be preserved with added grace down the distant years, we sadly lay down the pen we have so long and gladly devoted to its service, and bid it a long, long FAREWELL—FAREWELL.

THE EDITOR.

Publisher's Notice.

This day I have disposed of the subscription list, good will, name and other business of THE HORTICULTURIST, for purposes of consolidation with the GARDENER'S MONTHLY of Philadelphia, Pa., published by Chas. H. Marot. The reasons which have compelled me to this course have resulted mainly from press of other business occupations, successes and engagements which require all my time and leave me none to give adequate care and attention to the interests of the THE HORTICULTURIST. The six years of my connection with it have been of loving service. I took it with fond affection for its name and fame, and to the best of my ability, taste and judgment have endeavored to keep up a lively interest in its welfare, and make it grow in popularity and good repute. I am pleased to say that my efforts have been successful. Every year it has been financially a success, and even now it possesses the necessary business to guarantee its life for many years to come. But the new children, and literary interests which also under my care have grown up around the old friend, have outstripped it, and my time is needed for them.

Believing that THE HORTICULTURIST could not serve its purposes or history any better, or more nobly, I have given it to the care of Mr. Meehan, who for so many years in its early history was its principal writer and assistant editor. United with the GARDENER'S MONTHLY, it will have new strength; its name will be maintained; new vigor and life and popularity will accrue, and the entire

family of its friends will be abundantly satisfied, and feel that it is no longer *lost to them*, but has been mated to its worthy partner, and, together, they will nobly bear a more beautiful, united, happy, peaceful life for many years to come.

The subscription list of THE HORTICULTURIST, also the advertising pages, will be added to the GARDENER'S MONTHLY; and as I will retain a pecuniary interest in the journals for some time to come, subscriptions and correspondence relating to THE HORTICULTURIST may still be directed to me, or the Philadelphia office.

I bespeak for the new management the confidence of the public and the continuance of the patronage of all the old friends of THE HORTICULTURIST.

HENRY T. WILLIAMS,
December 15, 1875. *Publisher.*

A Garden Farm.

Horatio Crain, of Detroit, writes to the *Michigan Farmer* an interesting account of the garden farm of Mr. B. Borton, who resides just beyond North Toledo, on the lake shore. We make the following extracts, as showing what may be done by judicious cultivation:

The city of Toledo is situated about five miles from where the Maumee river discharges into Lake Erie. The Ottawa river, or Ten Mile Creek, has its source north of Toledo, and flowing nearly parallel to a portion of the Maumee, empties into that river at its mouth. Thus is formed a gradually tapering strip of land lying between the two streams, with Lake Erie on the east. This little territory, so favorably located for fruit and vegetable growing, was long occupied by the old French settlers and their descendants, and their improvements were of the ancient order, the fishery and the hunt possessing for them attractions superior to agriculture. To this locality nine years ago there came from southern Ohio a Jerseyman, named Borton, who, being versed in all the mysteries of market gardening, bought 51 acres of wild land for $800, and with his father and sons has carried on a farm for profit. Known far and wide as the Jersey farmer, because of his system of culture, the designation is not inapt, since, with his house in Ohio and his barn in Michigan, his citizenship is not so well defined after all.

Perhaps a few notes of his progress may be of interest. The yield of a single acre in 1873–4 amounted to the original cost of the farm. This acre, in Mammoth Cluster raspberries, three years old, yielded last year 73 bushels, realizing $300. From the same acre 9,000 plants were sold for $90, and as many more were obtained and set out on the farm. By cultivating vegetables between the rows of raspberries, the yield of this acre was increased to $660 that year. Four years ago this acre was in strawberries and yielded handsomely. This year the acre was given over to raspberries, and on the 12th and 13th of July nearly 44 bushels were picked, and then the acre of berries looked as if it had not been touched. A fair estimate of the yield of that acre was over 150 bushels, and the price then obtained was five dollars per bushel, which would indicate a gross income of $750 this year from this same acre. Mr. Borton is convenient to market, sells through one agent year after year, and by watching the market closely realizes generally the top price for his produce. He has a half-acre, which for five years has been in onions, yielding annually 200 bushels, selling at $1.25 per bushel. Thus the half-acre annually returns $250, and for five years has yielded say $1,250.

Mr. Borton's sweet potatoes compared favorably with those grown in the choicest parts of New Jersey. A three-quarter-acre patch yielded last year 100 bushels of marketable potatoes, which brought two dollars per bushel, or $200 for the three-quarter acre. For five years past he has obtained this price for his sweet potatoes. There were six acres in Early Rose and Neshannocks, cultivated with double-shoveled plow and yielding about 300 bushels per acre. There was a large

patch of peas, the seed of which was bought for Daniel O'Rourkes, yielding about 60 bushels, but which were not true to name, proving to be a late pea, hence, instead of selling for from $1.50 to $1 per bushel, the price realized would be from 75 cents down to nothing. This was a loss inflicted by an ignorant or dishonest seedsman. Early sweet corn nets Mr. Borton about $100 per acre, besides the fodder. While in Burlington County, N. J., he secured an ear or two of small but very early corn. Planting this with a larger variety, in a couple of seasons a hybrid combining sweetness, size and earliness, which has proved a very profitable variety.

All Mr. Borton's acres under cultivation are treated like a garden with thorough culture. The soil is sandy loam, mixed with fine shells and lime, with clay subsoil. But little manuring is found necessary, for Mr. Borton keeps no stock but for work and a milch cow or two. However, what fine manure he may care to use he readily obtains at Toledo.

Hale's Early Peaches.

Chas. Brown, of Dover, Del., writing in a local paper, respecting the Hale Early Peach, a cultivator on the Delaware Peninsula says:

The oldest Hale's early trees on this Peninsula are now ten years old—mine are nine. They have nearly all been profitless before 1874, from the premature rotting of the fruit. My oldest trees, 450 in number, the past year, bore full crops, without any rotting. I marked 1407 baskets from them, besides about 100 that softened *without rotting*, after the last picking—934 baskets were sold in New York, averaging 91 cents per basket, clear of freight, commissions, etc., clearing $849.94—and 473 baskets sold in Philadelphia, averaging 76 cents, $359.98—whole crop, $1,200.42. A single car load, sold in New York, August the 6th, for $878.75, less freight and commission, $664.71.

I think the *age* of the trees, more than Mr. Lemosy's plan of allowing the grass and weeds to overrun his orchard, was the cause of his success. I tried this with mine, but it failed to do any good. In the spring of 1871 I cut the head, or centre stem or limbs, out of my trees, thus exposing the whole interior to the sun and the air; this I think helped them, but I attribute my success more to the fact that the *grass and weeds were kept closely grazed by sheep*—which also ate all the young peaches as they fell, and thus relieved my entire orchard from the curculio for some years.

I have fourteen thousand peach trees, embracing thirty-three different sorts, from one year old to fifteen, and, from my experience, I think peach trees should be cultivated in the spring and the ground kept clear and loose until they are six years old; after that, they should be plowed and harrowed once each year, any time after the crop has been taken off—the later in the fall the better.

Sedum Sieboldii.

The London *Garden* calls attention to the beauty of Siebold's Stonecrop, when grown as a vase plant. The peculiar stony hue of the leaves and delicate rose of the blossoms which appear in autumn, makes it seem most happily placed when filling a small classic vase in an isolated position. In cold soils it often makes a very stunted growth; but, planted as above described, it grows to the height of a foot or more. For small baskets in the greenhouse it is also worth attention.

Gardens of Rentilly.

These gardens, illustrated in the frontispiece, are within the extended walls of Paris, and with their grand old forest trees, broad alleys, and superb statuary, are noted for their beauty and superior character.

The basins, fountains, and ornamental masonry surrounding these gardens, are constructed of the *Beton Coignet* stone, an artificial stone which, for these purposes, has been found far better than cut stone.

The walks, steps, balustrades, borders and statuary, are really one solid mass, without a joint or fissure, although they appear to have been constructed in the usual manner and with ordinary materials.

A Weeping Dogwood.

Mr. Meehan, in the *Gardener's Monthly*, thus refers to this unique tree, which was discovered by Dr. W. S. Thompson, of Baltimore county, in one of his rides:

We have seen a plant of the Weeping Dogwood (*Cornus Florida*), referred to by one of our advertisers, and can say that it is one of the most charming things we ever beheld. The branchlets are completely pendulous, and yet the leader manages to go straight up, so that it can be made very handsome as a specimen, even when worked low. In flower and fruit it must be a striking object, and then its dark leaves in fall would be as beautiful as the purple Beech in spring. It is unusual for a discoverer to offer the plant in this way. We suppose some amateur lover of rare trees will secure it; but perhaps good offers will come from some in the trade, who will be proud to be among the first to introduce so good a thing.

Horticulture in Southern California.

D. W. McLeod, of Riverside, San Bernardino county, California, writes to the *Pacific Rural Press*, of the wonderful fruitfulness of his section, in the following extravagant terms: Your subscriber from Cedar Rapids, Iowa, is right when he supposes we "have something in Riverside for which to thank God." Yes, we have to thank Him for a good climate, plenty of water, and a soil which will grow anything which is put into it, when well watered.

This morning I spent an hour in the orchard and vineyard of George Garcelon, Esq., and he showed me the work of two years. Many spots in the Eastern States could not, in one dozen years, show anything like the beauty of two years' growth. Eucalyptus, forty feet high; pepper trees spreading out their foliage; pears, peaches, apricots, quinces and almond trees, not three years old, in full bearing, and from two to four inches in diameter. Several fine varieties of figs, in the second year, from cuttings, produced a large crop. Lemons, limes, oranges, etc., all looking thrifty with large growth, but still too young to bear. He has eight varieties of grapes. One, the "Black Turkey," grows enormously. I lifted one cluster which weighed at least ten pounds. His Muscat Alexandria he made into raisins, equal to the best imported Malaga, and they averaged ten pounds of raisins to the vine in the second year.

To tell what has been done in Riverside would take more time than I have now at my command; and to say what *can* be done would be to put a limit upon willing hands, and the blessing of Providence upon the best soil in Southern California.

Land can be procured for from $30 to $40 per acre; water shares $10 extra to the acre, which gives a perpetual right to water; so that the owners of water stock only pay for what they use, in excess of the average. After eight years' sojourn in California, and visiting all of sixteen counties, I have come here to make my permanent home. I am satisfied with the change and say, to all in search of a home, "come and see Riverside before you settle."

The Beurre D'Anjou Pear.

Every year, when this pear begins to ripen up, we begin to feel our enthusiasm rising, and feel like seizing our pen, and exhorting everybody to indulge, if possible, in the luxury of eating this, we are almost ready to say, king of pears. We are now enjoying, upon our table, the Duchesse d'Angouleme, a pear decidedly inferior to d'Anjou, coarse-grained, of woody texture, slightly astringent, but still sweet, and better than most apples in eating condition at this season. The Fameuse apple, however, we prefer to the Duchesse pear, and as they generally appear upon our table together, we generally compare their qualities.

But to return to the Anjou; we keep them barreled up in a cool place, to retard their ripening up until the holidays. Last year we feasted upon them about that time, and our annual enthusiasm in their favor found vent in an article in our issue for January 2nd, in which we compared the merits of Duchesse, Beurre Deil, and the Anjou, and while we admitted that there might be more money in the former, for the market grower, we placed the latter far ahead in quality.

This year our ardor in favor of this pear is prematurely excited by a present of a half barrel from the nursery firm of Ellwanger & Barry, who excel quite as much in the production of fruit, as in the production of trees upon which the fruits grow. The pears are

remarkably large, smooth, sound and well ripened up, and as we enjoy their fine-grained, melting, buttery, sweet, aromatic flesh, we again wonder how any man owning an acre, or a small garden spot of land, can have the cruelty to deprive himself, and those dependent upon him for their food, of such a wholesome luxury, when it can be obtained at so small an outlay of money and labor.

We suppose that this great sin, of omitting to provide for his family such innocent enjoyment must be excused, as a great many other sins are excused—on the ground of ignorance. The sinner does not know how easy it is to plant, cultivate, prune and tend such trees; thinks they will blight, be wormy, scabby, or in some other way a failure, and so neglects to plant, and when the season of fruit comes around, sighs to think he must be excluded from the fruit-grower's paradise.

Pruning Hydrangeas.

The Hydrangea is cultivated and pruned in two different ways: for pot culture, and the training for out-door plants. The safest way to prune it for out-door culture is never to cut back one morsel of the young wood till it has done flowering, and then to cut it back entirely to the old wood; never to cut back the old wood until it gets too crowded, and then cut back to a promising young shoot; to thin out young shoots when they are three joints long, if they come much crowded, and not to allow suckers to grow from the roots on any account whatever. There is nothing differing in principle between pruning a Gooseberry-bush and a Hydrangea-bush; the old thumb-rule and the best rule for Gooseberry pruning is: "What you cut, cut clean out, and what you leave do not touch with the knife." But the drooping kinds of Gooseberries require some of the points of the young shoots to be cut back to prevent them from trailing too much on the ground. We all know that Hydrangeas should be planted in shady places.

Some curious experiments have been made in France to test how far the humidity of the atmosphere is affected by forests. Two sets of instruments for recording humidity were provided, one in a forest, and the other in the open air, a short distance off, each set being placed about fifty feet from the ground. The records show that during the first six months of 1874 more rain fell in the forest during each month than in the open field; the total rain-fall in the forest was $7\frac{1}{2}$ inches, and in the open field a fraction less than seven inches. The difference each month was favorable to the forest.

Various Perfumes of Roses.

A writer in the London *Garden*, after remarking that Mignonette, Heliotrope, Verbena, Violet, Orange-blossoms, etc., has each its peculiar odor all the world over, speaks of the endless variety in the scents of the Rose, and he mentions seventeen distinct sorts, among which are the Sweetbrier scent, the Moss Rose scent, the Myrrh-scented Ayrshire, the China Rose, Damask Perpetual, Scotch Rose scent, Old Tea scent, etc. Another, termed the Verdier scent, and which takes in many newly introduced Roses, is compared to that of Apple blossoms, or perhaps more correctly to a delicate Rose scent, with a suspicion of turpentine about it, pleasantly blended. Roses give off more perfume after having been gathered a little while.

Fine Varieties of the Amaranth.

The first to be named is the *scarlet-leaved weeping Amaranth*, the *Amarante Melancholique* of French gardens. The whole of the leaves and stalks of this variety are of the richest crimson scarlet, so that the plant becomes highly ornamented as soon as the first leaves are developed. Masses of this plant may be made to produce a strikingly beautiful contrast with such as have foliage of a light vived green, with white or yellow flowers, or, in short, with any plants in which bright green tints predominate. In such situations, it may fitly replace the handsome Coleus Verschaffeltii, which requires the heat of a stove to bring it forward.

The seeds may be sown in an open border, or where fine early plants are required for bedding purposes, they should be sown upon

a partially exhausted hot bed in March or April, and planted out in May.

Another variety called by *A. bicolor*, by seedsmen, has the under part of the leaves cool crimson, while the upper surfaces are of a warm glowing crimson of very striking character, which, at a short distance, produces the effect of splended flowers.

A third grand variety, known as *A. tricolor*, produces an effect of a very different but equally splendid character. The leaves of this finely variegated plant are alternately red, green, or yellow, while many are beautifully marked with all three colors.

While so many costly novelties are run after with such avidity, it may be well to try back occasionally, and expend a few pence upon some seed-packets of recently improved varieties of Ameranths, although they may not be novelties of the current or even the last season.

The Lady Henniker.

This is the name of a new apple which is extensively advertised in England. The fruit is described as very large, roundish, narrowing a little towards the apex, with blunt angles on the sides, which terminate in prominent ridges round the eye; skin yellow on the shaded side, with a faint blush of red, which is covered with broken streaks of crimson on the side next the sun. Eye large, open, with short segments, and set in a very deep globular basin; stalk very short, set in a deep, wide, russety cavity; flesh very tender in the grain, well flavored, with a pleasant perfume. A first-rate apple, valuable as a cooking variety, useful also as a dessert fruit. Season, October to February.

Remarkable Preservation of Fruit.

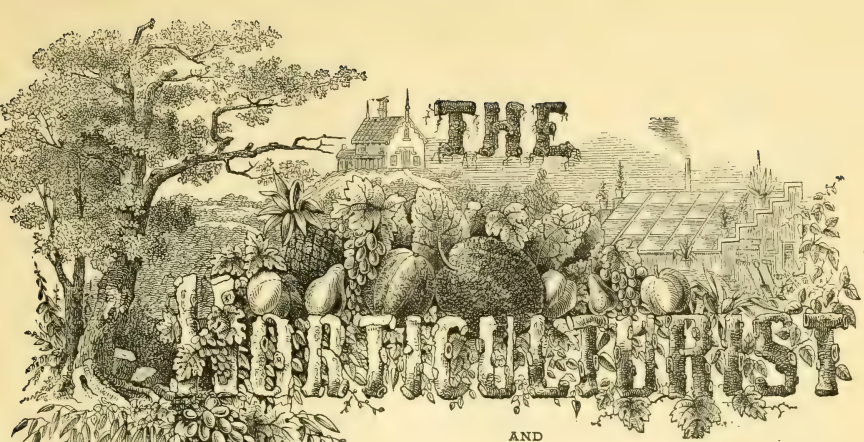
At the Vienna Exhibition there were exhibited fresh apples, pears, etc., shipped and transported from *Victoria, New South Wales*. Mr. Casson, President of the Horticultural Society, at Victoria, gathered them carefully, and wrapped each fruit in clean unused tissue paper. A layer of dry cotton wool was then laid in an ordinary case, and on this a layer of apples in paper. More layers of cotton at side of case, and alternating with rows of apples, succeeded each other until the case was filled. The lid was nailed on in the usual manner, and the package was placed in the ice room of the steamer until landed. When unpacked, the fruit was found in fine condition, and excited both admiration and astonishment.

"The Blue Daisy."

Great prominence is given to the value of this flower by English gardeners, especially since it was flowered with success last summer on the rockwork at the Kew Gardens. It was imported by the expedition to Morocco, three years ago, of Dr. Hooker, Messrs. Maw and Ball. It was figured in the *Botanical Magazine* last year, where we are informed that the "Blue Daisy is one of the commonest spring flowers in various parts of Morocco, abounding in fields with a rich soil on the hills near Tangier, and occurring in great profusion by the watercourses of the valleys of the greater Atlas in latitude 31°, at elevations of 4,000 ft. to 11,000 ft." It flowers very profusely, and continues for a considerable time. The color is rather pale, but with some of the few who possess it the color has been bright. It does the best when planted on rockwork and is increased by careful division, preferably of plants in pots.

New Double Begonia.

Monsieur E. A. Carriere, the editor of the *Revue Horticole*, gives a most interesting account of a new hybrid seedling Begonia raised by M. Lemoine, of Nancy, which must be by far the finest and most beautful thing of the kind that has yet been seen. This fine novelty is the result of crossing Begonia Pearcei with B. Veitchi, and is to be sent out under the name of Begonia Monstruosa. It is also said to present features of exceptional and unusual interest to the botanist, as it produces both male and female flowers, the former only being double and of immense size and fullness, the latter single and comparatively insignificant. The color of the flowers is a brilliant flame-color, and they are most freely produced above handsome shining foliage. The plant is also almost hardy, and likely to prove a valuable acquisition.



THE HORTICULTURIST

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PUBLISHER'S NOTICE.

As per notice in the editorial columns, I have this day (December 15), disposed of THE HORTICULTURIST to Charles H. Marot, of Philadelphia, Pa., for the purpose of union with THE GARDENER'S MONTHLY. It gives me more pain and regret than I can express, thus to dispose of one who has been to me at once one of my best delights, and to whom I have tried to be a steadfast friend.

It closes its thirtieth year in honor, and its life of usefulness, never yet sullied, is rounded out in full and splendid form. Gladly would I have wished that other hands than mine could have done more and better for it. It came to me unsought—I took it with joy, and have, to the best of my ability, cared fondly for it. As a good friend, I have never forsaken it; and now that time and a multitude of business cares prevent me from giving adequate attention to it, I deeply feel the pain of parting, and shall miss its pleasant face.

Within three years, the rapid growth of other branches of my business has demanded more and more of my time, and the past year I have been overwhelmed with more cares and business successes than I could well manage

My other journals and books have proved unprecedentedly successful, and I am now issuing over 60,000 copies per annum of the various publications, with a very rapid increase each succeeding season.

Though I have engaged additional help constantly for the editorial conduct of THE HORTICULTURIST (and it has been to me a great relief), yet I find myself now in the midst of the most successful season I ever enjoyed, utterly unable to find even an hour's time each day to devote to either the business or editorial conduct of THE HORTICULTURIST, and feeling that it is better that it should pass into the hands of those who can have more leisure to give it the attention it really deserves, I have transferred it to the care of Mr. Mehan and Mr. Marot, who relieve me of all my care, and still conduct it, in main, quite as acceptably as heretofore.

In bidding farewell to this the longest lived and best, in honorable repute, of all the horticultural journals of the United States, I beg all to remember that it is not the death of a veteran, but it has taken another and surer lease of life, where its name will, beyond all doubt, be perpetuated years and years to come.

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Financially, THE HORTICULTURIST alone is in excellent condition. It has yearly paid me good and splendid profits. Even in the past two years, when business has been greatly depressed, it has yearly paid all its expenses and given me a fair surplus, and its subscription list is to-day as large as the first year I took it, in 1869. It is not, therefore, from failing business, that it is disposed of, but simply that its present editor cannot dequately find time for its management.

NOTICE TO SUBSCRIBERS.

As I retain pecuniary interest in the consolidated journals, for probably several years to come, there will be no business change in mode of payment of subscription.

The subscription list of THE HORTICULTURIST is added to that of THE GARDENER'S MONTHLY, and carried on in the same manner as usual.

Unpaid subscriptions will be continued till paid, and subscribers' accounts closed by payment in full; and subscriptions for the coming year may be enclosed to me or to the Philadelphia office, the same as usual.

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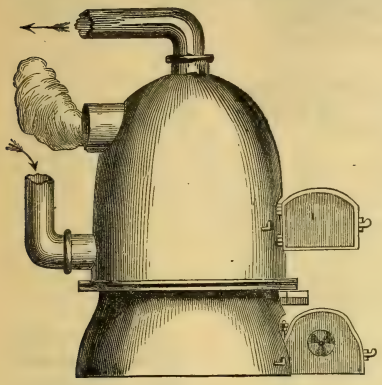


Fig. 1

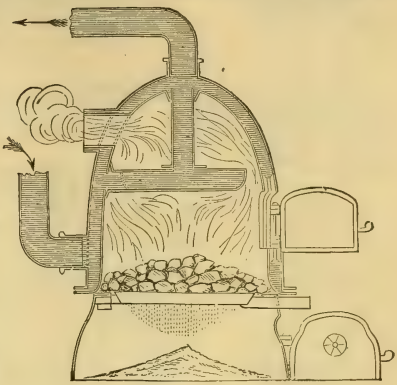


Fig. 2.

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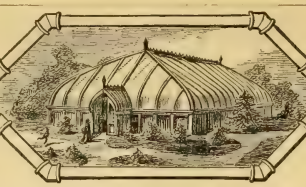
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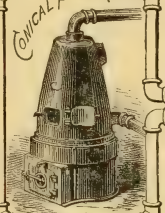


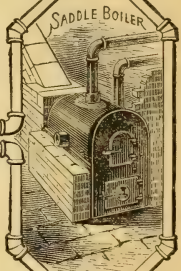
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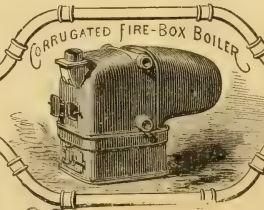
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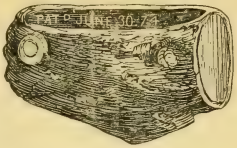


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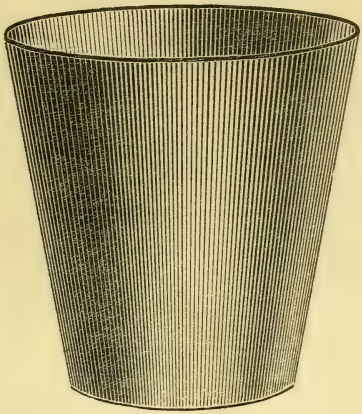


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